This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

9109-12572

Educational Foundations

SEPTEMBER
1906

VOL. XVIII
NO. 1

DEPARTMENT OF
EDUCATION.
RECEIVED
SEP 7 - 1906
LELAND STANFORD
JUNIOR UNIVERSITY.

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY
ELIZABETH, N. J. Entered as Second-Class Matter at the Post Office at Elizabeth, N. J. NEW YORK CIT

Copyright, 1906, by A. S. Barnes & Company, New York

Contents for September, 1906

The Program for 1906-7 1

The Human Need of Growth 3

Educational Research. J. M. Rice 6

The Doctrine of Interest. Joseph S. Taylor . . . 17

The Psychology of Attention. T. Ribot . . . 25

Education of the Dullard in the Public School. James Parton Haney 31

The Course of Study. Charles B. Gilbert 35

English Composition in the Lower Grades. George S. Messersmith 47

The Autobiography of a Teacher. C. Hanford Henderson 55

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to June inclusive, at $1.25 a year, and is sent to its subscribers regularly until ordered to be discontinued and arrears paid in full. We also publish **The School Journal** weekly, $2.50 a year, **Teachers Magazine**, combining "The Teachers' Institute," "Primary School," "The Intelligence," and "Primary School Era," monthly, $1.00 a year; and **Our Times** (formerly "Our Times," and "Week's Current"), weekly, $1.25 a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly 400 Standard Teachers' Books and Aids, and keep in stock all the best of such books of all publishers; also all Recitation and Dialog books published, Blackboard Stencils, Teachers' Aids, etc. These are described in three valuable and attractive catalogs: Teachers' Catalog (free) 148 pp., describing our own publications; School Entertainment Catalog (free) describing all the really valuable books in this line of all publishers, and New Century Catalog, 4c., describes and classifies all books of all publishers relating to teachers (1700 titles) All requests for catalogs, orders for books, etc., should be sent to A. S. BARNES & COMPANY, Educational Dept., 11-15 East 24th St., New York—16 Jefferson St., Elizabeth, N. J.

Copyright, 1906, by A. S. Barnes & Company

(Entered at the Elizabeth, N. J., Post Office as Second-class Matter)

EDUCATIONAL FOUNDATIONS

VOLUME XVIII—1906-1907

COPYRIGHT, 1906-07

A. S. BARNES & COMPANY
NEW YORK

COPYRIGHT BY
A. S. BARNES & CO
1907

106768

LIBRARY
LELAND STANFORD, JUNIOR
UNIVERSITY

Index to Volume XVIII.

Aldrich, George I. The School as an Agency for the Moral Training of Children.............................. 133
Apperception and Its Relation to Other Mental Processes. Joseph S. Taylor..............................330, 454
Arithmetic, A Test in. J. M. Rice...................... 250
Arithmetic, Test Questions in. J. M. Rice.............. 268
Arithmetic. Charles B. Gilbert..................82, 243, 322
Arnold, Thomas. Joseph Payne..................... 745
Autobiography of a Teacher, The. C. Hanford Henderson...................55, 94, 174, 271, 348, 463, 590, 661
Balliet, Thomas M. The High School of the Future...... 209
Balliet, Thomas M. Brain and Education.............. 483
Brain and Education, The. Thomas M. Balliet, Pd. D.... 483
Campbell, Leonard Herbert. A Shorter School Day...... 217
Carney, Frank. Observational Work for Children....... 570
Chancellor, William E. Order of Development and Studies Suited to Each Stage............................ 545
Chozner, J. The Hebrew Woman in Bible Days......... 293
College Entrance Requirements in Modern Language. Carl F. Kayser.................................. 224
College Man as Leader in the World's Work, The. Prof.. R. H. Thurston.................................. 380
Correlation; Co-ordination; Concentration. Joseph S. Taylor, Pd.D...........................537, 578, 649
Course of Study, The. C. B. Gilbert..38, 82, 243, 402, 498, 561
Doctrine of Interest, The. Joseph S. Taylor, Ph.D.....17, 118
Dickson, G. W. The Making of a Program for Rural Schools 437
Early School Teaching of the Jews, The............... 362

Educational Research: Causes of Success and Failure in Arithmetic. J. M. Rice 418
Education, Systems of Public 689, 760
Education of the Dullard in the Public School. James Parton Haney, M.D. 31
Educational Classics 165, 606, 677, 758
Educational Research. J. M. Rice 6, 251
Electives and Fundamentals 626
English Composition in the Lower Grades. George S. Messersmith 47, 108
English Language Instruction. Charles B. Gilbert 561
English Language. The. Charles B. Gilbert 627
English Poetry for Children 640
Examinations, Teachers' 69, 154, 235, 309, 391, 477, 560, 608, 700, 773
Foiklore in "The Culprit Fay." Hubert M. Skinner 55
First Two Years in School, The 584
Gilbert, Charles B. The Course of Study. 38, 82, 243, 402, 561
Gilbert, Charles B. Arithmetic 82, 243, 321
Gilbert, Charles B. The English Language 627
Giving as a Fine Art 45
Grading, Promotion, and Individual Instruction. Magdalena Huyssoon 72
Growth of Interest 24
Haney, James Parton. Education of the Dullard in the Public School 31
Heart at the Center, The 241
Hebrew Woman in Bible Days, The. J. Chozner 293
Henderson, C. Hanford. The Autobiography of a Teacher 55, 174, 271, 348, 463, 590, 661
Herbart on the Aim of Education. Ossian Lang 604
High School of the Future, The. Thomas M. Balliet 209
Human Need of Growth, The 4

Huyssoon, Magdalena. Grading, Promotion, and Individual Instruction........ 724
Informal Teaching of Religion and Morals in Common Schools. Geo. H. Martin........ 161
Jones, Olive M. A Year's Work in Old World History. 656
Keller, Albert Galloway. The Teaching of Commercial Geography........ 513
Lang, Ossian. Herbart on the Aim of Education........ 604
Literature and History. Hubert M. Skinner........ 287
Making of a Program for Rural Schools, The. G.W. Dickson 437
Martin, George H. Informal Teaching of Religion and Morals in Common Schools........ 161
Medical Inspection........ 731
Messersmith, George S. English Composition in the Lower Grades........ 47, 108
Methods of Teaching Arithmetic. Simon Newcomb........ 144
Minimum State Standards Needed........ 308
Newcomb, Simon. Methods of Teaching Arithmetic........ 144
Newcomb, Simon. Pedagogic Discussion........ 144
Observational Work for Children. Frank Carney........ 570
Old World History, A Year's Work in. Olive M. Jones 656
Order of Development and Studies Suited to Each Stage. William E. Chancellor........ 545
Paton, J. L. School Discipline........ 526
Payne, Joseph, Thomas Arnold........ 745
Pedagogical Discussion........ 217, 584, 697
Pedagogic Discussion. Simon Newcomb........ 144
Philadelphia Raises Salaries........ 234
Psychology of Attention, The. T. Ribot........ 26
Reading. C. B. Gilbert........ 402, 498
Reid, Whitelaw. The Rise of the United States........ 187
Revival of Ancient British Legend, The. Hubert M. Skinner 286
Ribot, T. The Psychology of Attention........ 26
Ribot, T. Spontaneous Attention........ 169, 344

Rice, J. M. Educational Research 251
Rice, J. M. Educational Research: Causes of Success and Failure in Arithmetic 418
Rise of the United States, The. Whitelaw Reid 187
Ruskin on Education 165
School Discipline. J. L. Paton 526
School as an Agency for the Moral Training of Children. George I. Aldrich 133
Shorter School Day, A. Leonard Herbert Campbell 217
Skinner, Hubert M. The Revival of Ancient British Legend 286
Skinner, Hubert M. Folklore in "The Culprit Fay" ... 553
Spontaneous Attention. T. Ribot 169, 443
Taylor, Joseph S. The Doctrine of Interest 17, 118
Taylor, Joseph S. Apperception and Its Relation to Other Mental Processes 330, 454
Taylor, Joseph S. Correlation; Co-ordination; Concentration 537, 578, 649
Teaching Power in Elementary Schools 299
Teaching of Commercial Geography, The. Albert Galloway Keller 513
Thurston, R. H. The College Man as Leader in the World's Work 380
Topics for Discussion 552, 559

"In speaking of education we do not allude to that universal education by which Providence conducts the human race to its destiny, nor to that indirect education which comprises all those natural and social conditions under the influence of which individuals raise themselves to their particular destination, and which, taking them from their cradle, conducts them thru all the accidents of life thereto; but that which concerns itself only with the means taken by parents and teachers of their children and scholars for directing them in their physical and moral developments."—ROSENKRANZ.

"I confess not to have any conception of education without instruction, as, on the other hand, I also do not recognize any instruction that does not educate."—HERBART.

"Education is a systematic exertion of an influence upon the still formable inner life of another whereby a definite form is to be given to this life and is actually given."—WAITZ.

"Education is leading human minds and souls to what is right and best and making what is best out of them; these both go together."—RUSKIN

Nothing stimulates a child to greater effort than the feeling of genuine growth. Artificial stimulants must necessarily lose their effectiveness in the course of time. The teacher who labors conscientiously and intelligently to broaden and deepen the children's understanding and to develop their power of independent thinking and efficient doing, will have pupils ambitious to learn and advance. Conscientiousness alone will not do it. Conscientious treadmill horses—and their number is legion—do not inspire the onlooker with the beauty and magnitude of life. Intelligence in teaching means pedagogical insight and conformity with the results of the best educational experience. Lack of this special intelligence spells *dilettanteism.*

"In the United States of America all g t
lems are in a fluid condition; they are di
books, magazines, and newspapers, often t
superficially, almost always with enthusiasm
conviction. The widest public is interested in th
Usually the thought itself is derived from Germ
but here it is projected into the world of things, beco
often, it is true, before it is matured. The public i
see it carried out; how this is done is frequently a
sideration. Everywhere there is credulous optimi
with harmless dilettanteism, everywhere high a
execution, but lack of solidity in matters of detail.

* * * * *

"While with us the school frequently points out to
the inadequacy of their work, holds them to the perf
of minor tasks with painful attention to all diffi
overwhelms them with difficulties and exceptions, t
practice prevails in the American school. Diffi
avoided, mistakes passed by; frequently the pupils are
tasks whose performance would exceed their pow
school is satisfied with a childish treatment of the
makes the impression upon the children that the p
been fully solved. This results in quickness of
self-confidence, superficiality, and dilettanteism."—E
the Report of Dr. Dunker, an educational expert y the
German Government to study American schools.

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII SEPTEMBER, 1906 No. 1

The present number will go to many who may not now be acquainted with the aims and objects of this publication. To them is addressed this word of explanation.

Educational Foundations has for sixteen years steadfastly adhered to its original plan of supplying broad, progressive, and carefully planned courses of reading for teachers and those aspiring to teach. It is really a serial text of pedagogy and is especially adapted for systematic professional reading and discussion. Its monthly appearance offers the advantage that it does not permit the element of novelty to wear off and keeps up an interest in systematic professional reading for a whole year at least.

Educational Foundations deals with fundamentals. It discusses systematically the great principles of education. It is the only magazine occupying itself with the various aspects of the history of education. The processes which make teaching effective are clearly presented. School organization and administration are carefully considered. Educational psychology and child study are regular departments. The classics of education are reprinted with comments. Questions (with answers) for examination and review are published month by month.

The Program for 1906-7

"Principles of Teaching" will be presented by Joseph S. Taylor, author of the very helpful manual on Class Management. The discussion of "The Doctrine of Interest" will be followed by chapters on "Correlation, Co-ordination, and Concentration," "Apperception," "Multiple-Sense Education," "The Inductive, Deductive, Socratic, and Heuristic Methods."

"Educational Research" will be discussed by J. M. Rice, editor of *The Forum*, who has done great work for the schools of America by his remarkable investigations of the results produced in the schools. His researches have supplied the outlines of a new science of education. A complete revision of his most important articles has been undertaken, and will be published in EDUCATIONAL FOUNDATIONS.

"The Course of Study" will be handled by Charles B. Gilbert. After a general survey of the problem, each study will be taken up by itself to determine its individual value and its relation to the great problems of education.

"Composition in the Lower Grades" by Geo: S. Messersmith, of Newark, Delaware.

School systems of France, Germany, Great Britain, Italy, Sweden, Denmark, and probably also Switzerland,—by Albert Snowden.

"Psychology of Attention"—There is no better basis for a comprehensive discussion than Ribot's great essay. A new translation, or rather adaptation, has been specially prepared for EDUCATIONAL FOUNDATIONS and will run thru the year.

There will be the usual departments of "History of Education," "Great Teachers," and "Educational Classics," besides a much improved department of Teachers' Examination questions, with answers.

EDUCATIONAL FOUNDATIONS will also publish during the year, C. Hanford Henderson's "Autobiography of a Teacher," a remarkable series of articles, presenting in a charmingly personal manner a number of the really great educational problems. This "Autobiography" gives flesh and blood to pedagogical ideas. Dr. Henderson is a teacher of remarkable power, broad-minded, keen, and large-hearted. As a writer he probably has no equal among contemporaries, in the masterful handling of the English language. The "Autobiography" supplies a liberal course in the philosophy of education.

Thomas M. Balliet will contribute during the year. He has no superior in the work of training teachers for their profession. His criticisms of the various plans of grading and promoting pupils in the elementary schools will clear the atmosphere of charlatanism and give us some fundamental propositions and standards for weighing contending claims.

EDUCATIONAL FOUNDATIONS will be ready for mailing to subscribers on or before the 15th of the month preceding date of issue.

Public education is an economic investment, enriching, thru the recipient, the country at large.

Congress has granted a charter to the N. E. A. The reorganization is substantially the same as recommended by the trustees at the Asbury Park convention in 1905.

The promotion of the education of the young by good schooling is neither more nor less than an investment, promising rich returns in the increase of the industrial, commercial, and intellectual wealth of the nation.

Every month brings us nearer to the recognition of the need of a speedy readjustment of the programs of elementary and secondary schools. A new civilization is upon us with problems and ideals which could not even have been dreamed of by the makers of the traditional courses of study.

The Human Need of Growth

THIS is the season of fruition in nature. Earth has yielded her product, and man is rejoicing in the harvest. But there the story does not end. The law of life is growth, and growth means labor. Winter is a busy season in nature's chemical laboratory. The soil is revitalized, and the juices of the strawberry and the cherry are distilled. There can be no cessation in the process of growth, without risk of speedy dissolution and death. That is true of the physical world and it is equally true of the world of the mind and of the spirit.

I know of no sorrier individual than a teacher who has stopped growing. He is to inspire the young to labor for better and ever better understanding of the world; and for greater and ever increasing efficiency; yet he himself cares not to understand and to do better day by day. His example preaches indolence. Are there many such teachers? Alas! One of them told me: "Before I was given a permanent position in the schools I worked early and late to qualify myself. After that, somehow, I lost interest. My work is laid out for me and I do it as well as I can. Now and then the principal or a supervisor wants things done in a particular way, and I do as I am told. My superiors seem to be satisfied, and so the thought has never occurred to me that I ought to 'grow,' as you say, for my own salvation and that of my pupils." What a sad confession for a teacher to make!

Keep growing! If the routine of the school is too obstinate to permit of the introduction of new things, there may be room for the improvement of the old. The Great Teacher did not begin His great work by destroying the ceremonial routine of the Jews and the Romans—he came not to tear down. He put new spirit into the old forms. Wherever a freeman is placed and under whatever conditions, he can find opportunities for growth. But if his restless spirit persuades him that the sun is brighter in the elsewhere, then let him fold his tent and go.

Yes, better give up teaching altogether than run the risk of dying from the heart outward.

Growth is a human need. Humanity dies when growth ceases. The miserable carcasses may keep on moving and even draw salaries, after the flame is burned out, but—good Lord, deliver the laddies and lassies of them!

The beginning of the end of one's growth is self-satisfaction. It is the worst thing that can befall an otherwise moral man. In the teacher it is a sin, for it dulls his work. And dull teaching is a fraud upon humanity.

It seems incredible that any humn being should be so unmindful of his weaknesses as to feel supremely satisfied with himself. There may be difference of opinion as to the direction which growth should take. But there can be no question about the absoluteness of the need of growth. Striving to come to one's best is inseparable from true humanity. What shall we say of a teacher who starves his own humanity? *Keep growing!*

Public education has long been considered a civic charity, an opportunity, as it were, which society is holding out as a gift to the young to enable them to equip themselves for the battle of life. This crude conception is being gradually superseded by the somewhat more adequate view that social security and economic prosperity must depend more and more largely upon the education of the people, and that the schools, accordingly, are requisite to the preservation and extension of the nation's most important interests.

Deliverance from the burden of shame that unscrupulous politicians have imposed upon several school organizations will never be effected until the plain people know enough about the purposes of the common school to resent attacks upon it as promptly as they now resent the slightest interference in their church affairs and personal habits. The time must come when the average citizen will be just as deeply interested in questions of public school administration as he now shows himself to be in the question whether beer is to be sold on Sunday or not.

Educational Research

ALTHO many of the problems concerned in elementary education have been before the world for centuries, and many great thinkers and practical educators have endeavored to aid in their solution, there is still much uncertainty and indefiniteness. We have opinions innumerable, but no facts are presented in support of these opinions. Educators are divided into creeds. Concerning practical propositions there is scarcely any agreement. Pedagogy thus presents a peculiar condition. It has pointed the way to the development of the sciences, and has itself failed to adopt what it has long been recommending to other scientific pursuits, namely, the inductive method of study. Its works consist largely of opinions, of reviews of opinions, and of opinions based on opinions, and therefore of a mass of contradictory material. Until the conflicting views are subjected to analysis in the light of clear and unmistakable facts, there can be no real science of education.

In view of the circumstances that during its long period of existence pedagogy has established no facts, that side by side with it, in other fields, facts have multiplied and developed into sciences, it is perfectly legitimate to ask whether pedagogy will admit of purely scientific treatment, whether it is possible for us to accumulate such facts as will lead to the discovery of certain pedagogical laws and certain methods and processes upon which all educators *must* agree.

Those who have never looked upon the educational problem from this rather novel standpoint will instinctively answer the question in the negative. They will say that the problem is complicated by so many elements which enter into the development of the child-mind that no definite conclusions can be drawn. They will be supported in this view by the fact that even broad-minded teachers of wide experience differ on the most elementary points coming under their daily observation. And this further item may be mentioned in their favor, that even the same teachers are continually changing their views, that they no longer believe in one year what they firmly believed the year before, and that a year later they will begin to feel that their second theory was wrong and the first was right, and so on indefinitely.

The evidence in favor of the negative side, tho exceedingly strong, is, however, not at all conclusive. That in spite of all efforts the whole field of pedagogy should be still so very indefinite proves without doubt that, as a whole, the problem is a complicated one; but it does not prove that we have availed ourselves of all possible means that may be of service in its solution. It may be that the nature of the child mind is so elusive, and the influence of natural endowment, heredity, and environment so varied, that all definite observation is rendered impossible; or, on the other hand, it may be that we have not yet applied the proper methods of observation. If the former is true, we shall have to abandon the idea of ever developing a real science of pedagogy, and continue to grope our way in the dark. If, on the other hand, the latter is the case, then we must see what can be done to improve our methods of observation.

In my opinion, the problem of elementary education presents two distinct phases, one of which is involved in subtleties and belongs to the department of philosophy, while the other is more tangible—or superficial, if you please—and is, in large part, a question of science. Each one of these phases has its special goals, and each its special means of reaching those goals. The two sides have never been properly considered apart. The first includes the factors which relate to the development of character, while the other is concerned with the acquisition of knowledge and skill.

Broadly speaking, the means employed in the development of character—the will, the tastes, the habits, the feelings—are represented by the course of study as a whole, and concern the question of what the school shall teach—the branches, and to a certain extent the material in each branch. As the composite picture of what the future man or woman should be differs in different individuals and is a matter of philosophical creed, the broader aims of the elementary schools will always differ more or less in accordance with creeds. Therefore, in countries, such as the United States, where individual communities are free to conduct their own schools as they choose, the courses of study will continue to differ in different localities, and will represent the nature of the inhabitants, the stamp of the members of the School Board, and the individual opinions of the superintendent.

The means employed in the transmission of knowledge and skill, on the other hand, represent the elements involved in carrying out the mandates of the course of study, and are matters of detail in school work. They include the division of the material of each branch into parts suitable for each grade, the amount of time to be devoted to each subject in each grade, the methods of teaching each subject, etc. Altho this aspect of the problem, as well as the other, has been heretofore treated from the standpoint of creed, it is not a matter of creed, but one of scientific inquiry, and calls for treatment on the inductive plan. It constitutes the very heart of the problem of practical pedagogy, and therefore merits careful consideration. This I shall endeavor to make clear.

On the practical side of school work, two questions are always before us:

(1) How much time shall be devoted to a subject; and
(2) What results shall be accomplished?

These two questions have been discussed *ad nauseam* in pedagogical writings and at educational meetings; but educators are no nearer to an agreement at present than they have ever been. There is a close relation between the two questions. They can not be handled independently, and on a basis of philosophical creed. The disregard of this fact has produced a mass of speculative opinion as to what results shall be accomplished in each branch, and another mass of speculative opinion as to how much time shall be devoted to each branch. And there the matter ends.

The ship of pedagogy has become water-logged in a sea of opinion with respect to these questions. Efforts should be made, therefore, to point her in a different direction, and find whether we can not get out of the trough. In this case, the matter is a very simple one; it is merely necessary to change the form of the proposition in order to be able to move onward. Instead of stating what results shall be accomplished, let us ask, "What results can we get?" This changes the position of the educator from a dogmatic one to one of scientific inquiry. It opens the way to investigations which will enable us to learn what results the schools of our country have been obtaining—the good, the moderate, and the poor—and therefore what results may be reasonably expected. Our demands may then be stated in very definite terms. The results demanded are reasonable results.

As to the amount of time to be devoted to a subject, the answer is, "A reasonable amount of time to get reasonable results." To arrive at a conclusion in this matter we must find how much time has been given to a subject in the schools where reasonable results have been obtained, and make our calculations accordingly.

The element of time is the saving clause. If we were to demand results alone, we should be in danger of going back to the methods employed in the old-fashioned, mechanical schools. This cannot occur when we limit the time in which the prescribed results must be secured. If more than a reasonable time is absorbed in accomplishing the demanded results, the school is below the standard.

It is clear that the plan of measuring results in units of time is limited in application. It cannot be applied at all to abstract qualities represented by traits of character, and perhaps not to certain phases of knowledge and skill; but it can be very readily applied to spelling, penmanship, language, and arithmetic—the branches to which, on the average, about seventy per cent. of the school time is now devoted. I base this claim not on mere opinion, but on actual investigation.

The plan of application is very simple. Children taught under different systems are subjected to one and the same test—which must be fair and practical—and the results are then com pared. Each branch requires a special treatment of its own. In spelling, words are dictated to the children in columns and sentences. In arithmetic, a set of questions covering such work as is undertaken in all schools is given. In language, a story is read to the children, and the pupils reproduce it in their own words. The penmanship may form a part of the test in language. The papers will show the legibility and neatness of the handwriting, etc.

By subjecting the pupils of the schools of different cities to the same test in any one branch to which the plan is applicable we can, without doubt, get at the comparative standing of different cities in that branch, and substitute facts for opinions in regard to whether or not the teachers of those cities have been successful in the teaching of that branch. If in arithmetic, for instance, the questions are so selected, grade for grade, that no exception is taken to them by the teachers of any city, and the results show that the pupils in city A can do the examples without any difficulty, while those of city B can scarcely do them at all, then the facts prove that the children in A are a great deal stronger in arithmetic than those in B, and that there is probably something radically wrong with the arithmetic in B.

I am here stating an actual case established by a test in arithmetic. The differences in results in different cities are so great as to be almost incredible. In the highest grammar school grade, for instance, the class averages range between eleven and ninety-one per cent. As my tests consist of eight examples, this means that while in the best class examined every child was able to perform correctly more than seven problems out of the eight, in the poorest they did not average even one right to the pupil. Several of the highest grammar school classes averaged under twenty-five per cent., while some averaged over eighty per cent. What is true of these individual classes is representative of different cities as a whole. In other words, while in some cities the percentages in general were high, in others they were extremely low. The schools were not selected, but taken at random; care being exercised simply as to neighborhood, so that the well-to-do, the middle-class, and the poor districts might all be represented.*

Excellent results in city A and miserable results in city B, secured on a perfectly fair test taken under the same conditions, ought to be considered sufficient to establish the fact that the children of A are stronger in arithmetic than those of B. Yet if the pupils of A should obtain an average of ninety-five per cent., and those of B should average not more than five per cent., some educators, with pronounced opinions as to methods, would not be swerved from their belief that the pupils of city B were really the stronger, if they happened to believe in the methods used in B; and they would argue that the comparative strength in arithmetic, as between the pupils of two cities, could not be demonstrated by any test devised by man. Fortunately, however, the number of those who are taking a rational view of the question is steadily increasing. There are now many superintendents and principals who are really anxious to know what their pupils can do in comparison with those of other cities; they appreciate that the results obtained thru my tests have an important bearing on the question; and if their pupils fail they sincerely wish to know it as well as the reasons for the failure.

For all practical purposes, then, I think we have a right to declare that we can determine how the children in different cities compare with each other in certain branches as regards results; that from this standpoint we can classify the cities into good, fair, and poor; and that we can strike an average upon which we can base a reasonable demand.

But the results alone do not tell us the whole story. They merely give us, commercially speaking, an account of the articles purchased, without indicating whether good value has been received for the capital invested. The child's capital is represented by time; and whether certain results are to be lauded or condemned depends upon the amount of time expended in obtaining them. Children in all cities have about the same amount of capital at their disposal for school purposes, three hundred minutes a day; and the practical problem lies in discovering how this capital may be expended on sound economical principles, i. e., without waste.

---

*The details of this test will be found in Chapter II.

Applying this principle to arithmetic, it might be said that, if the cities devoting sixty minutes a day to the subject should secure a general average of sixty per cent., while those giving only forty minutes should obtain an average of forty per cent., all these children were receiving equal value for the capital expended. It would then become debatable whether it is well to spend one-fifth of the capital on arithmetic, or whether it is advisable to be content with less of that branch and devote part of the sixty minutes to some other subject. But if city A with its forty minutes should obtain an average of only forty per cent., then it would be evident that for some reason or other, the children of A were not only paying thirty-three per cent. less for their arithmetic than those of B, but that for the lower price they were getting a far superior article. The actual proportion as to price stated in units would be as forty to ninety. The problem lies in finding a reasonable market price.

Now my tests, which cover schools in a large number of cities, show without any doubt whatever, that educators have no idea of price, that the results bear no relation to the time expended, that some schools pay a very high price for a very poor article, and others pay a very low price for a very good article, while all sorts of prices are paid for the identical article.

For example, in my spelling test, which was taken in nineteen cities, the variations in results were small, but the time given to the subject in different cities varied from ten to forty minutes a day. Computation showed that, taken all in all, the children did not do any better where they had spent forty minutes a day on spelling than in the schools where they had spent only ten; or, stating the matter commercially, some children were paying a dollar for an article that other children were purchasing for twenty-five cents.

In arithmetic, as I have already indicated, the variations in results have been enormous; but while they have been very good in some cities and extremely low in others, the results have borne no relation to the time given to the branch. The schools in which the children have been making a very poor showing have devoted just as much time to the subject as the schools where the problems have been solved without any difficulty, and in some instances more. The constant cry on the part of citizens for more time to spelling and more time to arithmetic is ridiculous. Whatever the shortcomings may be, the remedy does not lie in an increase of time.

What I have said in regard to the time element in teaching is in one sense a solution of a most important educational question, namely, "Can the schools cover a wide range of subjects without neglecting the essentials?" If my investigations have proved anything, it is that time given to a subject beyond a certain point is not rewarded by additional return, that nothing can be gained by pressure; and the indications are that all the benefit that can be obtained thru instruction in the formal studies—reading, spelling, penmanship, language, and arithmetic—can be had in two hours a day at the utmost. This means that we can enrich the course of study abundantly without detriment to the three R's, and that if the results are below a reasonable standard, in any locality where a reasonable amount of time is given to the formal studies, the failure is not due to a lack of amount of instruction in these branches, but to some other cause.

But when we know what results can be accomplished, and the time in which reasonable results ought to be obtained, we have secured the needed foundation for the study of pedagogy on the inductive principle. It is not enough to know that some schools are very much more successful than others; we must also try to learn the reasons why some have succeeded and others have failed, and in this way endeavor to discover certain fundamental laws of teaching which may be applied by all. Upon this matter we are all at sea to-day. There are plenty of theories, but my investigations have proved that our preconceived notions have no foundation in fact. Many elements must be taken into consideration, such as the age, nationality, heredity, and environment of the pupils, the training and personality of the teacher, the methods of instruction, the views of the superintendent, etc. But my figures prove that the influence of these factors is totally unknown; and unless we secure a working basis, it must forever remain unknown.

For example, many seem to take it for granted that spelling is a question of heredity; but if this be the case, how is it that the highest percentage in the United States, on my test, was secured in a school where ninety-five per cent. of the pupils were children of Bohemian cigarmakers? In arithmetic, the children in the slums of some cities did a great deal better than those of the so-called best districts in others. This does not agree with the theories of environment, at least as far as arithmetic is concerned. Then, again, if all depended on the training and personality of the teacher, we should not find good results in the large majority of instances in one locality and the opposite condition in another, while the teachers may be fully as well trained and carefully selected in the one community as in the other. Nor can the difference be accounted for on the score of methods alone; as some teachers do well with certain methods, while others completely fail with them. The size of classes must also be ruled out, the results being just as liable to be favorable in large as they are in small classes. Perhaps the demands of the superintendent play an important part; and this, again, is a point calling for most careful study. The mere fact that very good results can be obtained among children whose home surroundings are of the poorest, while very inferior results are frequently found where the conditions are all that can be desired, is sufficient evidence to upset many previous calculations.

Now that it has been demonstrated that we have a ready means of learning with what success each teacher is meeting, and therefore a basis for studying why certain schools are successful and others are not, there ought to be no delay in taking advantage of it.

But who is to undertake this work?

Why, those who are most directly interested in the schools, the people themselves.

Our country is fortunately situated. The people of each community own their own schools and are free to conduct them as they choose. They need not wait for the goodwill of others if they desire to branch out in any progressive direction. The plan here outlined is practical and its effects are immediate, and it is therefore one for the practical people to take in hand. To be sure, the people as a whole are not interested in pedagogy. They do not understand it. Neither are they in sympathy with pedagogs, because they do not understand their subtle minds. But the people are intensely interested in the schools, for the support of which they are willing to dip down into their pockets to almost any depth, with reverence, and as a rule, without the slightest murmur. That they have never taken an intelligent interest in the schools is not their fault, but that of the educators themselves; for how can they be expected to distinguish the true from the false when the leaders in the profession do not agree as to which is the one and which the other? The system I recommend is intelligible to all; and if it should be carried into effect, laymen could take a really intelligent interest in their schools. It would give them an opportunity of knowing what returns they were getting for the capital expended, because it would enable them to learn with what success each individual teacher was meeting as compared with that of other teachers. Even people who spend money lavishly are anxious to make the best bargain for what they do spend.

Any community can carry out the system if the citizens are willing to pay for the special services required. While the plan is simple, it entails considerable labor; and in order that the work may be properly and systematically performed, some one must be designated to do it and to be held responsible for it. As the city superintendent has his hands full enough at present, a special office of school examiner must be created for the purpose. To the superintendent such assistance would be of great value.

Upon him devolves the work of supervising teachers, and largely that of recommending their appointment or reappointment, of preparing courses of study, time tables for the different grades, etc. The findings of the school examiner with reference to these points would be an invaluable guide. Moreover, the repetition of tests, from time to time, would enable the superintendent to obtain a much clearer idea of how his recommendations were working out than he can have when he shoots at random, as he now does, and there is no one to tell him when he hits or misses the mark.

Besides taking tests and tabulating results, the work of the special assistant would lie in endeavoring to account for the differences in results on the part of different teachers in his locality; and it would be the duty of the special school examiner in each city to work in harmony with similar examiners in other cities, in order to account for differences in results in various branches in different localities. Under these circumstances, the children could at once receive the benefit of every new discovery. The small additional expense involved in maintaining an office of this kind should not be considered any more than people consider, whether, by reason of expense, their school halls shall be illuminated with candles or electric lights. If one enterprising city will take the initiative, others will be sure to follow, just as others followed the leader in engaging a city superintendent.

Editor of the Forum. J. M. Rice.

It is never wise to ask children at school for contributions of money or other gifts for any purpose whatever. There is no danger in being too careful in avoiding anything that may expose children to humiliation among classmates. Children are by nature cruel. The girl who is able to contribute twenty-five cents is as likely as not to impress that fact upon those who have given less or nothing. Let us try to keep alive, by every means in our power, the feeling of fellowship among the young. Differences of station and material advantages will be brought home to them altogether too soon after the doors of the school are closed behind them.

The Doctrine of Interest

I. Theories of German Philosophers.

1. HERBARTIAN THEORY.

(1). *Illustration of Interest.*—It is Sunday afternoon. Four people are seated in a study, each differently employed. The little boy, eleven years old, is making a diagram of the Temple of Solomon, a description of which he has heard from his Sunday-school teacher in the morning. The little girl, four years old, is building a house with blocks, singing to herself the while. The father is reading a book on philosophy. The mother is looking at the pictures in the current number of a magazine. Each person in the group follows his own inclinations, does exactly what he pleases.

The feeling or impulse which thus engages the attention of people for hours, or days, or a lifetime, and commands all their energies in pursuit of a given object or line of endeavor, is as mysterious as the invisible force of the magnet. We call it interest; and we are to consider in this discussion the nature of interest and the use that may be made of it in education.

(2). *Herbartian Psychology of Interest.*—To illustrate the Herbartian conception of mental activity, we may employ the imagery of chemistry. Picture a druggist's mortar containing several different kinds of chemical elements. Certain of these elements possess the power of mutual attraction, others of repulsion. Their contact with each other in the mortar results, by reason of affinities and antagonisms, in a rearrangement of the atomic units, and thus we obtain a new chemical compound. The mortar is no factor in the chemical processes. It is merely the container of substances which have inherent energy that accounts for all their changes.

This imagery seems to me to be analogous to the psychology of Herbart. In his view ideas seem to be entities that possess the power of attracting or repelling, or favoring or opposing, other ideas; and this energy, inherent in ideas themselves, is apparently sufficient to account for all forms of mental activity.

The majority of modern psychologists assign an independent existence and office to three powers, which are regarded as ultimate psychic activities, incapable of further analysis and not derivable one from another. These powers are *knowing*, *feeling*, *willing*, and constitute a psychological trinity, each member of which is co-equal in importance with the others. Herbart denies the existence of this trinity and builds his pedagogy upon the doctrine of unitarianism. The mental godhead in his creed is centered in *knowing*, while feeling and willing are respectively secondary and tertiary consequences derived from this one original power of knowing.

Let us grant, for the sake of understanding Herbart, that the original content of consciousness is an idea. As soon as this idea enters a state of knowledge is produced. Now, suppose two other ideas appear at the door of consciousness, one tending to keep the first in its place, the other to suppress it. The unfriendly idea produces a sense of pressure, of discord, of warfare, which is nothing more or less than a *feeling* of pain. The friendly idea gives the sense of peace and harmony, which is a *feeling* of pleasure. Hence "*feeling*" is a consciousness of the furthering or an arrest of the movement of thought; when a furthering, a feeling of pleasure, when an arrest, a feeling of pain.[1] When a new idea enters the mind and finds a group of ideas ready to welcome it, we experience a feeling of pleasure. We are conscious of growth in our knowledge, of a certain sense of victory in overcoming an impression, an impression that might have passed comprehension, or remained in isolation. There is also an *impulse* (active) to reproduce the new product of apperception, to linger over it, to turn it over, and combine it with other ideas, thus extending still further the process of thought. The sum total of all these pleasurable states that result from apperception is *interest*.[2]

---

[1] Manual of Empirical Psychology. By Lindner, tr. by De Garmo. Heath & Co. 1896. P. 170.

[2] Apperception. By Karl Lange. D. C. Heath & Co., New York, 1894. p. 18.

(3). *Interest An End of Education.*—Some educators look upon interest as a means of securing the attention, "hoping that the knowledge will remain after the interest has departed";[1] but the Herbartians say that it is the business of education to incite an interest that will abide even after knowledge has passed away. The test of the success of education in a given subject is how much interest has been aroused, so that the pupil will continue his investigations and educate himself after school days are over. The end of education is to give the pupil an appetite; and thus his graduation from school is but the "Commencement" of a discipline that he will continue as long as he lives. What a vast difference between this conception of education and the current practice of estimating a teacher's success by a table of *per cents* showing how many facts are held in the memory! If superintendents should reverse their methods and test teaching by this touchstone of interest, what a revolution it would work on the pedagogical balance sheets! Some of the most successful crammers are murderers of interest. Not only the question of successful teaching, but even of discipline is involved in this matter of interest. A disorderly class is a class that lacks interest in its work. Good teaching is a sure cure of bad order.

(4). *Kinds of Interest.*—Herbart[2] divides interest into the following six classes:

1. Interest arising from knowledge or experience:
   (a) Empirical.
   (b) Speculative.
   (c) Esthetic.
2. Interest arising from association with others:
   (a) Sympathetic.
   (b) Social.
   (c) Religious.

(a) *Empirical* interest is pleasure excited by changes and novelty that arise from various presentations. Wonder is a form of this interest and is appealed to by the devices of the kindergarten and primary school. These devices, therefore, are legitimate, unless they are carried to excess. Perhaps this is as good a place as any to explain the difference between entertaining a class and interesting it in a lesson. There is a hysterical method of creating a pseudo-interest, which consists in excessive activity on the part of the teacher—a nervous fuss which is exhibited in violent gestures, grotesque facial expressions, walking to and fro, etc. This keeps the pupil on a nervous tension to see what the next clownish exhibition is going to be; it is interest in the teacher but not in the subject. Another form of entertainment falsely called interest consists in excessive or unskilful illustration, whereby the attention is riveted upon some obtrusive but unessential feature of the illustration, while the point which it was intended to illustrate is missed entirely. A case in point is the story of the clergyman who explained to a Sunday-school why ministers are the salt of the earth. He showed how salt keeps food from spoiling and then went on to explain the good work of the ministers in preserving the world from corruption. He flattered himself that the children were interested and understood him; but when he asked in conclusion, "Why, then, are ministers the salt of the earth?" a chorus of voices answered, "Because they keep victuals from spoiling."

---

[1] Herbart and the Herbartians, Chas. De Garmo. Scribner's Sons, New York, 1896.

[2] Outlines of Educational Doctrine. By John Frederick Herbart, Macmillan. 1901. p. 76.

Sometimes the teacher wonders why the principal or superintendent can hold the attention of her class better than she can. This may be a case of empirical interest, due to the novelty of the visitor's presence, voice, and manner. You have been in the class five hours a day for five months, and all this external novelty has worn away. Hence the empirical interest that you excite comes from your art; while in the case of a visitor, it may come from his presence merely—the cut of his hair or the color of his necktie.

One of the terrors of being "left back" is the prospect of gonig over the same work in the same old way, that is, with no empirical interest whatever. As nearly every class has some holdovers, it would be but common humanity for a teacher to vary his method somewhat from term to term. Most teachers have a habit of preparing note-books containing their interpretation and presentation of the course of study in the different grades. This is both an advantage and a disadvantage. It is an advantage in so far as it enables you to do the work more systematically and with a minimum expenditure of time and effort. But if such a note-book becomes a dead formula to be applied forever in the same way, it is an injury to both pupil and teacher. Every live teacher is growing; and a note-book that embodies his best thoughts to-day, is likely to be worthless to him next year, because in the meantime he will outgrow it. He will find that no matter how good it once was, in his opinion there is now a still more excellent way.

In the matter of text-books, too, empirical interest is often killed by compelling the pupil to keep the same book thru all the different grades. Such is the case with a certain spelling book known to the writer. It was used for years in all the grammar grades of a certain city. No wonder a child has no interest in spelling! I have seen a school history employed in three or four successive grades. Geographies are subject to the same abuse. In all such cases interest is abated, if not destroyed. There is to a child an intense relish in a new book, with new type, new pictures, new thoughts; and, as far as possible, he should have a complete change at every promotion.

This form of interest is dominant in the case of very young children. Appeal must therefore be made to it in the lowest grades. In constructing a program of class exercises in the kindergarten or primary school, the periods must be brief, and embody, in their order of succession, the principle of contrast. As the pupil advances he should become gradually emancipated from the slavery of this lowest form of interest.

As he gains in self-control and in the power of voluntary attention he no longer needs the constant stimulus of novelty, but exhibits other forms of interest that betoken a more advanced stage of development.

(*b*). *Speculative interest* is the impulse whish causes children to inquire into the cause of things. If I look at the stars I have an empirical interest; if I meditate upon their origin I have a speculative interest. This is manifested very early in children by the breaking of toys to see what they are made of. In our teaching we must make appeal to this interest by training children to look beyond facts to the laws that unify them. An isolated fact has no educational value. A group of unorganized facts is like a heap of stones obstructing one's pathway. Much of our nature study and geography teaching is of this sort. The children learn mountains of facts, but what of it? Until facts are thought into their proper relations they do not educate. When geographical facts are arranged in the form of a causal series, so that one is seen to follow naturally from another, then we have rationalized knowledge.

(*c*). *Esthetic interest*, according to Herbart, is aroused by the contemplation of an ideal thru a sense medium, as exemplified, for instance, by painting and sculpture. In plain language, it is the love of the beautiful. The school may minister to this side of a child's nature thru picture study, drawing, literature, music. This interest is stimulated also by school decoration, to which every teacher should pay careful attention. The class-room should be made as attractive as possible, not merely to win the heart of the child to the school, but in order that his taste may be cultivated by the silent influence of a beautiful environment.

(*d*). *Sympathetic interest* is the joy or sorrow we feel in view of the joy or sorrow of others. It is an altruistic emotion and is the basis of real friendship.

(*e*). *Social interest* is the pleasure that arises from social co-operation. The kindergarten is an admirable institution for the development of this interest, the plays, games, and songs involving the co-operation of all the children. This interest is the foundation of society, where the individual magnifies his possibilities by seeking the good of the whole. Class instruction is better than individual teaching, since the former employs and the latter neglects the social interest.

The child is to be socialized in the school. He must be made to feel that he is a member of the family, the city, the state, the nation. He must learn to think of the welfare of others as well as his own advantage. He must realize that the community is not educating him merely for his own gratification, but in order that he may use his gifts to bless others. A free education is a loan that the state makes to her future citizens. They are expected to pay back to society with compound interest all the benefits they receive. The sympathetic and social interest must be appealed to in this effort to develop the altruistic side of childhood.

(*f*). The *religious interest* is as real and natural a part of child life as any of the preceding kinds. A complete system of education must make provision for this instinct, as well as for the intellectual, social, and moral impulses of children. The accidental circumstance that the American form of government is such that religious teaching is necessarily excluded from the public school, does not alter the fact that the child has religious instincts. Nor does it alter the fact that in the judgment of a very large body of adults, the only sanctions of morality are rooted in religion. That is, these people find their highest motive for being moral in their religious convictions. The child believes easily in the supernatural. His unfeigned and whole-hearted belief in God is cited by Christ as the type of mind without which it is impossible to enter the kingdom of heaven.

(5). *Direct and indirect interest.* Herbart recognizes a further distinction between direct interest and indirect interest. When a child is interested in the object immediately under contemplation so that his attention is involuntary, the interest is direct. When the interest is in a remote end which can be reached only thru some intermediate process not in itself interesting, the interest is indirect. A boy who learns a lesson for a reward or because he fears punishment, has an indirect interest. This is strongly deprecated both by Herbart[1] and Parker.[2]

(6). *Criticism.*—This classification of interest, tho convenient and accepted without question by Herbartian writers, is open to the objection that it is unscientific. Logical division requires that the classes shall mutually exclude each other.

Herbart's principal division of interest is into two classes,—one arising from knowledge or experience, the other from social intercourse. Now, social intercourse is experience, too; therefore this division violates the first rule of division. Again, the interests arising from association with others are social interests; but one of the sub-classes is named social interest. This is no more "social" than sympathy. (For other objections, see DeGarmo[3]).

2. HEGELIAN THEORY.

The Hegelian school of educational philosophers repudiate utterly this setting up of interest as an end of education. They object to it both on psychological and on ethical grounds. They do not admit the primacy of knowing in the mental life, and the contention that will is derived from feeling and knowing is, in their view, absurd. Furthermore, if, as Herbart claims, will has its origin in *desire*, and desire grows out of *interest*, and interest is only another name for *pleasure*, we are driven by force of logic to the conclusion that the Herbartian code of morals may be summed up in this: "Do what is pleasant."

Hegel conceives the soul of man, not as a more or less passive victim of the conflict of ideas that issue in feelings and actions and thus determine conduct, but in terms of *will*. Self-activity is the central fact in Hegel's psychology. To him the essence of spirit is will, and everything else comes out of this. Man "must first *act*, and then live to know that he has acted." Thus knowledge grows out of will.[1] Hegel's principle amounts simply to showing us how conflict and active mastery continually enlarge our finite selves. Weak souls get weary of the fight, and give up trying to get wisdom, skill, virtue, because all these are won only in the presence of the enemy.[2] "Holiness means, not the abolition of worldliness, not innocence, not turning away from the world, but the victory that overcometh the world, the struggle, the courage, the vigor, the endurance, the hot fight with sin, the facing of the demon, the power to have him there in us and to hold him by the throat, the living and ghastly presence of the enemy, and the triumphant wrestling with him, and keeping him forever a panting, furious, immortal thrall and bondman."[3] This is the doctrine of "the strenuous life," which has been so frequently defended and so nobly illustrated by President Roosevelt. Such a philosophy makes a moral being superior to interest and pleasure, and requires him to do things because they are right, no matter how painful the process may be. Education is not a constant going down hill, a following of flowery paths and sunny slopes; but it is the scaling of heights, the overcoming of difficulty, the endurance of pain for the sake of right. The Hegelian tells the Herbartian that to make interest the ruling principle of education is to train children to follow every whim and passion. Is it not this that leads the drunkard to his doom, that beguiles the feet of every evil-doer? Is not this what indulgent parents are doing?—allowing their children to do as they please? Surely this is not moral training: it is nothing else than the slippery path of sin itself.

---

[1] Outlines of Educational Doctrine, p. 70.

[2] Talks on Pedagogics. By F. W. Parker, A. S. Barnes & Co., 1894; p. 367.

[3] Herbart's Outlines, p. 77.

Moreover, a school whose principle and goal is pleasure, is but a poor preparation for the duties of life that now is. Grown up men and women have to do a great many hard, disagreeable, and painful things. They cannot choose the "primrose path of dalliance"; they cannot, as Peter desired, abide forever on the

---

[1] The Spirit of Modern Philosophy. By Josiah Royce. Houghton Mifflin & Co., Boston, 1896. p. 209.

[2] Royce, p. 214.

[3] Royce, p. 211.

Mount of Transfiguration; they must enter the thick of the fight and mayhap walk even thru the valley of the shadow of death. And hence these Hegelians are not so much concerned about *interest* in the school-room. Make a subject as interesting as you can, but do not set up interest as the goal or sole test of merit. Will power grows by choosing and putting forth effort; and how can this occur where every process is automatic and unconscious thru the operation of interest?

It is but a matter of course that Hegel should have little patience with the sentimental sympathy for mere childhood as such, which would at all cost please the child—eliminating law by substituting the child's caprice, and thus encouraging a mere self-seeking *interest* on the part of the child, which interest Hegel pronounces "the root of all evil." "The purpose of the teacher, then, should not be merely to find out what the child happens to be most easily interested in and be governed accordingly, but to find out how the child can be brought to take interest in whatever pertains to his own normal advancement."[1]

New York. JOSEPH S. TAYLOR, PD.D.

(Continued next month.)

The Psychology of Attention

Much study has been given to the effects of attention, but very little to its mechanism. I purpose to confine my present investigations to the latter point. Yet even within these limits the subject is important, for it is, as we shall see, the counterpart, the necessary complement, of the theory of association.

I shall take for granted that every one sufficiently understands what is meant by the term. A greater difficulty is to know at what point attention begins, and where it ends; for it comprises all degrees from the hasty moment given to a buzzing fly, to the state of complete absorption. We shall confine ourselves to plain typical cases which present at least one of the two characteristics of *intensity* and *duration*. When both coincide, attention is at its maximum. Duration alone attains the same result by accumulation: as, for instance, when one makes out a word or a figure by the light of several electrical sparks. Intensity alone is equally efficacious: thus, one glance of a woman will take in the entire costume of a rival. Nothing is to be learned from the fainter forms of attention; at all events, it would be unwise to begin our study with them. Until we have traced the main outlines it would be idle to note nice distinctions or discuss subtleties.

---

[1] Hegel's Educational Ideas. By Wm. M. Bryant, Am. Bk. Co 1896. p. 188.

The purpose of my series of essays is to establish and justify the following propositions:

There are two clearly distinct forms of attention: one spontaneous, natural; the other voluntary, artificial. The former—disregarded by most psychologists—is the true, primitive, fundamental form of attention. The second—the only one studied by most psychologists—is but an imitation, a result of education, of training, and of compulsion. Precarious and vacillating by nature, it derives its whole being from spontaneous attention, and in it alone finds its support. It is but an apparatus formed by cultivation, and a product of civilization.

Attention under these two forms, is no indeterminate activity, no "pure act" of the mind acting in mysterious and undiscoverable ways. Its mechanism is essentially *motor*, that is, it always acts upon muscles, and thru muscles, chiefly in the form of an inhibition; and we might choose for the motto of our investigation those words of Maudsley's, "He who is incapable of controlling his muscles, is incapable of attention."

Attention under both forms, is an exceptional, abnormal state, which cannot last for any length of time, because it contradicts the fundamental condition of psychic life, which is change. Attention is a fixed state. If it is prolonged beyond a reasonable time, particularly under unfavorable conditions, then, as everybody knows, there results a constantly increasing clouding of the mind, and finally a kind of intellectual void, often accompanied by vertigo. These slight and transient disorders indicate the radical antagonism existing between attention and the normal psychic life. The progress toward unity of consciousness, which is the very basis of attention, manifests itself more clearly still in distinctly morbid cases, which we shall consider later in their chronic forms of "fixed ideas" and in their acute form of ecstacy.

Without passing beyond generalities, we are able by the aid of this clearly marked character—the tendency toward unity of consciousness—to reach a definition of attention. Take an adult person, in good health, and of average intelligence; the ordinary mechanism of his mental life will consist of a perpetual coming and going of inward occurences—a train of sensations, feelings, ideas, images, coalescent, or repellent, according to certain laws. Properly speaking, it is not, as is frequently said, a chain, a series, but rather an irradiation in various directions, and thru various strata; an unstable aggregate which is being incessantly formed, broken up, and formed again. This mechanism has been carefully studied and the theory of the association of ideas forms a solid acquisition of contemporary psychology. Not, indeed, that everything has been done; for, in our opinion, sufficient account has not been taken of the emotional states as a latent cause of a great number of associations. Oftentimes one thought will call forth another, not because of any resemblance between them in their character as ideas, but because there is a common emotional fact which envelops[1] and unites them. Then, too, we have yet to reduce the laws of association to the laws of physiology and the physical mechanism to the cerebral mechanism that supports it; but we are still very far from that ideal.

The normal condition is plurality of states of consciousness, or—to use an expression used by some authors—poly-ideism. Attention is a momentary inhibition, in favor of a single state of consciousness, of this ceaseless thronging: this is "mono-ideism."

---

[1] See good instances in in J. Sully: "Illusions," Chap. VII.

It is necessary to define clearly the sense in which we use this term. Is attention a reduction to a single state of consciousness? No; for internal observation teaches us that it is only a *relative* mono-ideism; that is, it supposes the existence of a master-idea, drawing to itself whatever relates to itself and nothing else, allowing associations to form only within very narrow limits, and only so far as they converge toward a common point. It converts to its own use—at least as far as possible—the entire cerebral activity.

Do there really exist cases of *absolute* mono-ideism, in which consciousness is reduced to a single state wherein the mechanism of association is entirely arrested? In our opinion, this does occur in certain very rare cases of ecstacy, which we shall analyze later on; but it lasts only for an instant, because consciousness disappears when placed outside of the conditions essential to its existence.

Attention—and again be it remarked that we are considering only clearly defined cases—consists in the substitution of a relative unity of consciousness for a plurality of states,—for change which is the rule. Nevertheless, this does not suffice for a definition of attention. A violent toothache, a nephretic colic, or intense enjoyment produces a momentary unity of consciousness, which we do not confound with attention. Attention always has an object; it is not a purely subjective modification: it is a cognition, an intellectual state. Here is another character to be noted.

This is not all. To distinguish it from certain states which approximate it, and which will be considered in the course of our investigation—fixed ideas, for example—we must take account of the adaptation which always accompanies it, and which, as we shall endeavor to prove, in a great measure constitutes wherein this adaptation consists. For the present, let us content ourselves with an entirely superficial view.

In cases of spontaneous attention, the whole body converges he eyes, ears, and sometimes the arms—toward its object; all movements are arrested. The personality is held fast, that is to say, all the tendencies of the individual, all his available energy are directed at the same point. The physical and external adaptation is the sign of the psychic and informal adaptation. The convergence is the reduction to unity substituting itself for that diffusion of movements and attitudes which characterizes the normal state.

In cases of voluntary attention adaptation is more commonly incomplete, intermittent, and precarious. The movements are inhibited, but reappear from time to time. The organism converges, but in a languid, reluctant sort of way. Intermittences in the physical adaptation betoken intermittences in the mental adaptation. The personality is held fast only partially, and at intermittent moments.

I must ask the reader to excuse whatever in these brief remarks may appear obscure or insufficient. Details and proofs will come later. I have merely tried to pave the way for a definition of attention which may be given in this form: "Attention is an intellectual mono-iedism, with adaptation, whether spontaneous or artificial, of the individual." Or, if another formula be preferred: "Attention consists of an intellectual state, exclusive or predominant, with spontaneous or artificial adaptation of the individual."

Now we may abandon generalities to study the mechanism of the several forms of attention.

SPONTANEOUS ATTENTION

Spontaneous attention is the only form of attention existing before the employment of education and artificial means. It exists in most animals, and young children have no other kind. It is a gift of nature. It is, however, very unequally distributed among individuals. Nevertheless, whether strong or weak, *it is everywhere and always caused by emotional states.* This rule is absolute, without exception.

College de France. T. Ribot.

Education of the Dullard in the Public School*

THE State for its own advancement and protection has developed a great system of public education. Economic needs have aided to cause this system to offer various forms of instruction to those pupils who attain the higher schools, a differentiation in courses which has been enforced by the fact that adolescent pupils differ much in tastes and inclinations. A careful study of the child in all his stages of development has, however, caused it to be seen that differentiation in subject matter and methods is just as necessary at the lower end of the scale as at the upper. The pupils of the high school grades, even tho they have been sifted and winnowed by a process making for the survival of the fittest, vary much in mental caliber and capacity. So, too, the pupils of the lower primary classes present a wide range of physical and mental capacity for development.

Somewhere in this range, tho where it is not always easy to state, it is our habit to establish a division line between the normal and the subnormal child. Those above this line grade upward by degrees to the genius, those downward by as slight differences to the imbecile. We have grown used to the thought of presenting to the normal adolescent, various forms of instruction especially adapted to his mental capacity, but are not as yet accustomed to the idea that to the normal or subnormal child should be presented material specifically adapted to his training and education.

From the fact that the grades of intelligence shade into one another by small differences it is difficult to say just what children are to be classed as subnormal. So far as public school teaching is concerned the subnormal child, however defective his physical and mental equipment, is able in a general way to take care of himself, to feed and clothe himself, and to find his way to and from school. From the individual who may thus be put down as the lowest school type with dulled sense preceptions and mental processes of the slowest, we pass upward until we reach one who just shades sufficiently short of his brighter brothers to be continually falling behind in any of those mental tests which are used to establish class-room standards.

---

*Read before the Society of the Alumni of City (Charity) Hospital, New York City, April 11, 1906.

Wide variations appear in the statements as to the percentage of defective children in cities where tests to this end have been made. These differences are to be accounted for by the varying standards erected by the different examiners and by the numbers and grades of the children examined Some cities report only one per cent. mentally dull, others as many as ten per cent. In some cities the presence of a large foreign population of a low type of intelligence and a low physical stamina accounts for the large number of the dull discovered, particularly when the examination has been conducted with rigid mental tests. It is not here proposed to reconcile these differences but to discuss the nature of the defective as seen in schools and the methods to be adopted in his training.

The great difference between the normal and subnormal child is a difference in power to function. This difference is dependent on the difference in structure, leading to a lack of what we call intellectual power. Stated in medical terms, the deficient has suffered an arrest of development. The cause of this arrest may be functional or central.

The commonest forms of functional cases are those that suffer from imperfections in seeing, hearing, and breathing. These difficulties when they occur in children otherwise normal make them appear dull, tho no central defect is present. Examinations to detect eye, ear, and throat troubles, must always be carefully conducted, for children are apt to be secretive in regard to such matters, even when they know that some trouble exists. Often, however, the child is unaware of the difficulty, and nothing but careful and tactful questioning will serve to revcal it.

When, however, the functional defective has his eyes furnished with properly adjusted glasses, has his seat placed in the class-room so that he can hear, or has adenoids in his pharynx removed he quickly experiences a mental awakening which is often very striking.

Associated with the above cases are those children who evidence a disturbance of the blood-making apparatus, who have been badly nourished or badly housed or who have experienced severe attacks of the eruptive fevers or other diseases of childhood. Cases of this type with their attendant physical symptoms may be found in every large school. With those previously mentioned they form the class of backward children, and are to be distinguished from the true defectives. Tho suffering from no lesion, they are undeveloped, dull, and apathetic with clammy hands and blanched mucous membranes. Once their blood is raised in quality and quantity, and their nutritive processes improved, they brighten mentally and are able to retake their places with their normal mates.

In the case of the central defective, quite a different picture is presented. He, too, may suffer from myopia, hypermetropia, deafness, adenoids, or anemia, but accompanying these defects he has an actual dearth of tissue in the higher centers. This pupil is the true defective. If his defect is congenital, he, as a rule, evidences unmistakable signs of arrested development, but if such arrest has arisen from menengitis or the cerebral complications of the eruptive fevers no such signs may be present.

It is about the head that the most marked signs of defective development appear. Those in the face are multiform. Among the most common are overacting frontal muscles, coarse and dry hair, malformed and high planted ears, narrow and close-set eyes, peg-shaped teeth, or teeth flattened by continued grinding. In general these symptoms may be said to be due to some defect in structure leading to defective innervation. The proper nervous control is absent, while the nervous currents may be exaggerated or deficient. Depending on such central defects we find types of the fatigued, irritable, or emotional child.

Deficiencies in the special senses are common among these children. They do not as a rule smell, taste, or feel things as does the normal child, tho it is to be understood that a deficiency in any one sense does not imply a deficiency in another. Not infrequently, one of the special senses, will be found normally or even abnormally acute.

It is in the intellectual centers that the defects make themselves most apparent. The power of comparison and judgment is imperfect. Concentration for the defective is impossible. His will is weak and his tastes perverted, hence, moral derelictions are common. He may be trained to be self-supporting, but no training can make him self-directing.

The school picture of the dullard shows him to be an overgrown lad occupying the rearmost seat in the primary class-room, his face now blank and slack-jawed as he listens apathetically to the lessons going on, or painfully wrinkled with an awkward grin as he hopelessly tries to comprehend the orders and directions of his sorely tried teacher. Surpassed by his mates in mental achievement, yet dully feeling his superiority in size and physical power, he restlessly chafes at their jeering flings or flies into paroxysms of bad temper in which his strength makes him a real danger, and his ungoverned tongue a menace to all class-room proprieties. When one adds to these undesirable qualities uncleanly personal habits or overt moral shortcomings, one completes in brief the representation of the dullard as he now exists in countless class-rooms.

Not, however, of his own volition does he remain cabined and confined. The longer he stays the more intolerable the conditions become for him and sooner or later he is off to join the errant band of truants who drift singly or in little groups of two or three, about the purlieus of every good-sized town.

Those who see the dullard only as an aggravation in the class-room are prone to say that such a one should not be allowed in school. Far more properly might it be said that he should never be allowed out of school, at least until he has obtained some measure of self-control, and even then it were wiser that he remain the ward of the school, to be followed in his industrial career with sympathetic yet watchful surveillance. As a mere economic axiom, boy-saving is less expensive to the State than the erection and maintenance of penal institutions to reform boys for the most part past saving.

The proper training can only be given in a special class and by a special teacher.

The class should be strictly limited in numbers, fifteen pupils forming the maximum that can be properly taught by one teacher. The class-room should be well lighted and should see the ordinary equipment of desks and seats replaced by tables and work benches.

In the case of the duller pupils the first exercises must be those which will give control of the larger groups of muscles—lessons in drawing long lines, in folding papers, or planing a board. To those who have control of the larger muscles, finer exercises, as those in braiding, weaving, cutting, and chiseling, should be offered. The sequence to be pursued with the defective pupil is not to be a sequence based on mental operations but on manual operations. The aim must be to develop an increasing muscular skill. The joy of successful constructive achievement and the growing knowledge of constructive power acts as a keen spur to interest and to mental development. The pupil's interest is to be enlisted in constructive work, however crude, and the teachings of language, form, and number, made to take their rise from such manual operations.

The constant effort of the teacher should be to seek self-expression in some form, and this expression should relate to things which the pupil sees as useful and good. In all such work the brighter pupils make helpful teachers for their slower companions. The good teacher will not fail to use these pupil-aids to the mental as well as the moral profit of her class.

Physical exercise and free gymnastic work should form part of the day regimen, and three times a week if it is possible to do so, the pupils should bathe under a shower bath. In the city of London, where a number of such special classes are conducted, there is provided in addition to the teacher, a school nurse or matron, under whose care is prepared a substantial and well cooked mid-day meal.

Inadequate and improper feeding of both the backward and the defective child is in a large number of cases one of the elements which has prejudiced his advance. The pupils of the special class should not, like the pupils of other classes, go home at recess, but should remain under the guidance of their teacher, preferably eating their luncheons at a common table.

It is in the city school with its thousand or more pupils, its crowded class-rooms, and its repressive discipline that the teacher of the special class is most urgently needed. Those seeking to organize such classes should bear in mind the things already noted as essential to success—a large room, a small class, a trained teacher, an elastic curriculum, and individual instruction in which mental work is made to rise out of manual work, and sense training.

A well organized special department must undertake to keep a careful record, presumably in card catalog form, of the pupils admitted to the special classes. This record should include their history at the time of admission, with a diagnosis by the examining physician and space for entries in regard to improvements shown while under instruction. The department should also undertake the systematic instruction of those who are to enter into the work, and should stand as a bulwark against the introduction of untrained instructors or those of mercenary mind attracted by the report that the special class has but few pupils, and a high salary paid to teach them.

To attempt to develop a special system with untrained teachers is to foredoom it to failure. The dullard must have a teacher informed as to his needs, understanding his limitations, sympathizing with his failings, and hopeful as to his future. This cannot be too strongly emphasized.

Of our largest cities—those over fifty thousand population—forty-one have as yet organized no special classes, fifteen report that they are doing something in the way of ungraded classes, and five or six of these including Chicago, Ill., Springfield, Mass., Bridgeport and New Haven, Conn., and Worcester, Mass., have classes for defectives. Cleveland, O., reports a department organized with eight classes, while in New York City there are now twenty-three special or ungraded classes with a register of 409 pupils. The first of these classes was organized in New York City but five years ago, while in May, 1903, there were only eight classes, containing one hundred and sixty-seven pupils.

Summarizing the advantages of the methods urged, it is to be noted that for the functional defective or backward pupil, the special class offers a means of rousing his intelligence and advancing him to his proper standing. While the defective if suffering from no profound lesion, can thru the influence of such a class be roused by a real interest in school work, and be given no small skill of hand, so that later in life he may take up some of the minor trades with a good prospect of earning a livelihood. The class thus tends to save from a useless or too often a criminal career a large percentage of the cases which come within its walls. It serves to educate those to whom usual class-room conditions are repellent.

A State as it develops a higher civilization cannot but become more solicitous in regard to its weaklings, conscious of their power of moral contamination. It must become more solicitous in this regard just as it becomes more solicitous in regard to infectious diseases and their power of physical contamination.

The organization of special classes in elementary schools, with teachers specifically interested in the welfare of their charges, is but the beginning of a far-reaching movement which the future can scarce but see. This movement in its briefest statement means its oversight of the weakling from his cradle to his grave. Many are the incentives which the State now offers to its brighter children to school themselves to produce their best. As it thus stretches forth one hand to aid those who can help themselves, so will it extend the other as a protection and a support to those who cannot help themselves and who, left to their own devices, will produce their worst.

New York. James Parton Haney, M.D.

The Course of Study

IN a series of articles, of which this is the first, it is proposed to discuss the course of study, treating its different subjects and departments seriatim and in some detail. But as a preliminary to such particular discussion, it seems necessary to consider briefly the course of study as a whole as to its aim and general character.

The course of study in a system of schools, whether of a State, a county, or a municipality, serves a twofold purpose; one economic, the other educational.

Its economic function is the unifying of the system. It is the great cohesive force that makes of an aggregation of schools a system.

The educational function of the course is to serve as a guide to the individual teachers in their work; for, unlike the ordinary college curriculum, it is not made by those who are to use it, and hence may not be departed from at will.

These two main functions call for special characteristics.

First, as to the economic function: what sort of unity is desirable in a school system, and how may a course of study promote such unity?

Naturally, if the pupils in the schools are uniformly and exactly graded and daily tasks are prescribed for all the grades, the result will be uniformity, and uniformity is a kind of unity, or more accurately a pseudo-unity.

Is it possible to give due recognition to a desirable freedom for the teachers and to the varying needs of children coming from many kinds of homes, and at the same time to preserve necessary unity?

In any one of our larger cities, with its heterogeneous population, with the widely-differing needs of Jew and Gentile, black and white, foreigner and native, children of millionaire and of ditch-digger, those from homes of luxury and culture, where all the influences supplement the work of the school, and those from the abodes of poverty, vice, and ignorance, who are kept in school at all only thru the force of law—is it possible under these varying conditions to frame a single course of study that shall properly regard the needs of all and do violence to none?

Is there any wide field of knowledge, any single line of intellectual activities of such universal adaptation that all may profitably spend time in their cultivation and pursuit?

Even if such subjects of study may be found, is it well to attempt to require the same attainments in them of all children of all sorts?

In other words, is it possible to frame a prescriptive course of study for New York or Chicago or Philadelphia, or even for a small city, that will not do violence to the needs of not only many individuals, but of some whole classes of children, some entire schools?

If it were possible to frame a course having this negative adaptation, is it desirable, or is it necessary to the preservation of proper unity in a system?

What degree of uniformity is desirable in a school system or necessary to the preservation of unity?

I. It should be possible for every child to pass thru all the grades of a system, from the lowest to the highest, without serious hindrance because of differences of subject matter taught, or of administration.

II. It should be possible for children changing their residences to go from one school to another without loss of grade or other embarrassment arising from differences in instruction. The good of the individual children requires this degree of uniformity.

III. It should be possible for supervising officials to judge of the efficiency of teachers according to some standard of attainment on the part of the pupils. It is not necessary, however, for this standard to be strictly uniform.

IV. It is desirable, but not essential, that instructions given to teachers and aids furnished them for their work be of general service. This is more important in smaller communities than in very large cities in which division of the supervising force and differentiation of function among its members are possible.

These needs seem to indicate the natural limits of necessary uniformity in a course of study in a school system.

It seems to me beyond question that there should be great differences in the course as administered in different schools, especially in large cities.

The children of the poor foreigner, who hear no English in the home, who themselves are accustomed to speak a foreign tongue, whose knowledge of the English language is limited to a few incorrect or slang phrases picked up on the street, and whose schooling is almost sure to be limited to the minimum required by law, certainly must have different instruction from those who have been accustomed from infancy to good English only, and who are reasonably sure to continue in school at least to the end of the public school course.

With the same course of study, the knowledge acquired by these children is sure to differ greatly and the desired end of intellectual growth by all, as nearly equal as possible, would be greatly facilitated by treatment adapted to their individual conditions.

The unity to be sought is one of aim and purpose, the development of each child into the best possible for him. Individual growth, which is education, rather than the knowledge of the same facts by all, is the end.

A minimum must be fixed necessarily and this is not difficult. There *are* certain subjects so nearly universal in their adaptation that all children should pursue them. The differences are in the details of these subjects and the methods of presentation.

The subjects that the experience of mankind has singled out as essential to such an education as the good citizen needs are: reading with its corollary, good literature; writing; the use of the prevailing language, with us, English; arithmetic and history; and of minor, tho great, importance to all, the laws and phenomena of nature, and the various manual and industrial arts, as drawing and the use of tools. These should be in all courses of study.

But it by no means follows that all students should be taught all these subjects to the same extent, or in the same manner. Their presence in a course of study insures unity. Freedom in their treatment and the emphasis placed upon them and in their correlations one with another, as suggested by the mental and social status of the pupils, gives variety in unity, which is the desideratum.

Indeed, a proper correlation of subjects, placing stress upon this phase or that, is the key to the problem. Suppose, for example, that "Nature Study" is used as the basis for certain "language lessons," the subjects chosen for observation may be as various as the environments of the children, and the stress may be placed where it is needed. With one class it will be upon the observation itself, securing needed power to see truly; with another, upon the expression, securing power to use accurately the simplest forms of speech, which the other children had acquired thru association and habit before coming to school at all. Such adaptation, however, is possible only under a liberal and broad course of study.

Unquestionably the children of very many immigrant families need for a time, at least, to recognize the fact that all other subjects must be subordinated to the study of the English language. That does not mean, however, that no other subjects should be studied. The same subjects may be pursued by them as by other children, but with a change of emphasis. Language cannot be taught alone. It is a medium for the expression of thought. Hence something must accompany the study and furnish thought for expression, else the instruction in language will be barren.

The great fundamental interests of the human mind, the laws and phenomena of nature, the ideals and achievements of men—that is," nature study," history, and literature presented in forms suitable to the conditions of the children furnish the best "thought stuff."

At other times and with other children, the industries, as typified by different manual training exercises, may properly receive the stress, and even the more important subjects may be made temporarily subordinate to them, not neglected or rejected, but placed in a relation determined by present and local need.

In these matters the course of study cannot wisely be prescriptive, for freedom to adapt may save a course from going to seed or doing mischief because of its ex cathedra character.

It must be borne in mind constantly that a mechanical uniformity, regardless of local or individual conditions, not only wastes the time and energies of pupils to a dreadful extent, but prevents unity of result in spiritual growth and attainment thruout a system.

A course of study, then, to secure unity to the system, does not need to be rigidly prescriptive.

It should require that fundamental subjects be taught thoroly in all schools, but should allow details of subject matter, the choice of material for elaboration and illustration, and, in the main, method of instruction to be determined by local and individual needs.

The absolute requirement should be "results," as shown in the knowledge and power of the children, and these results should be determined not by any narrow tests, but by standards of growth wisely and personally applied. They necessarily include steady growth by the children in fitness for life as it comes to them, the acquisition of sufficient intellectual power to enable them to meet the demands of the school life in its higher grades; this demands at least a reasonable minimum of knowledge of the accepted fundamentals, but not necessarily all the knowledge, or the same knowledge, of those subjects that other children in the same or in other schools may possess, but merely that which is essential to progression in work. A pupil who cannot perform reasonably difficult problems in addition and multiplication is not qualified to work in interest, and if this power has not been acquired at the proper time, something has been wrong, because addition is fundamental to mathematics. But a knowledge of duodecimals is not essential to work in percentage, even if it comes before it in the book.

In addition to the prescribed fundamental subjects, with their requirements for each grade broadly stated, the unity of the system requires that the course of study be rich in *suggestion* as to detail, additional material, and the treatment, and development of the different subjects. In fact, all the matter relating to detail and method, which, when prescribed, is dangerous, not only to the freedom of the teacher, but to the real spiritual unity of the system itself, when suggested, becomes promotive of both these desirable ends.

If the unity of the system is to be one of spirit and of aim, all means that tend to make clear the aim and to cultivate the proper spirit are helpful. The highest and best unity can be secured thru suggestion and inspiration, never thru force or prescription.

The second function of a course of study is to serve as a guide to the teacher in his daily work. The same characteristics that are required in a course that it may preserve the unity of the system, are equally essential to its second function. There must be prescription as to fundamentals, freedom as to details and methods. The teacher needs to have requirements stated positively and clearly so that he may be sure of his ground, and may prepare his children to progress without check or setback. The results expected of his class must be stated in unmistakable language, and also the general phases of the subjects upon which his efforts should be expended. But these should be given in broad terms, the terms of unity rather than of uniformity.

The course of study, however, should not give daily programs to the teachers of the different grades, even approximately. While these programs are of the utmost importance, they are matters of detail to be worked out in every school by the teacher and principal, according to conditions. This is necessary if the desired results are to be secured.

Among certain classes of children in our cities, the power to compute seems to be almost hereditary, and the desired results can be secured with comparatively little effort, while the study of the English language and of history and civics needs a large share of the time. In other quarters the reverse of this condition is found.

Moreover, prescription as to details of subject matter and method and the daily program is injurious to the teacher and destructive of good teaching. Teachers who are fit for their places can attend to these matters better than the maker of the course of study, and they should be not merely allowed, but compelled to do so for their own growth.

A cast-iron course of study is as destructive of teachers as the shoes worn by Chinese ladies are of their feet. The school machine at its best constantly endangers the teacher's power of initiative, his most valuable mental possession.

Hence every effort should be made to reduce this danger to the minimum. A premium rather than the threat of disapproval should be set upon originality that secures results in fresh ways.

I have seen scores, hundreds, of potentially good teachers robbed of interest and of teaching power by the rigid requirements, in minor matters, of the course of study. These teachers, when deprived of this corselet and compelled to stand erect alone, to breathe freely and act unstayed, have been dismayed and helpless, and have begged to be told again just what to do for each period of the day, and I have seen many forced into activity and made in the end strong, original, and enthusiastic teachers by the compulsion of necessity for doing some thinking and planning for themselves.

So that for the good of the teacher, as well as for the unity of the system, a course of study should be rigid in its requirements as to results in the fundamentals, but should leave to the teachers its application and administration in particular fields.

It should, however, supply a great amount of material for choice and should suggest method, illustration, and correlations, all in the spirit of the system. It should abound in explanation, suggestion, and inspiration—in all sorts of genuine helps, but they should be stimuli to independent exertion, not predigested food to take its place.

A course of study should not be too easy of comprehension

It should require study on the part of teachers; study of the course itself, in order to comprehend it, and study outside the course for help in administering it. A course that a teacher can keep in his desk and follow satisfactorily by occasional references to it, is a feeble course indeed.

A good course necessarily rests upon science and philosophy, both psychological and sociological, and should continually refer the teachers to principles, requiring research and study,—for such study is the teacher's vital breath.

It should also demand for its administration a fair amount of intellectual and literary culture, and should make necessary constant excursions by the teacher into the fields of science, history, and literature, for these excursions mean personal growth.

As education consists in growth, thru nutrition and exercise, that is, thru the acquisition of knowledge and expression—receiving and producing, import and export—the course should make provision for both of these. It should provide or suggest a body of knowledge and a range of activities. The former calls for knowledge on the part of the teacher, the latter for the exercise of free judgment and initiative.

The field of prescription is mainly limited to the body of knowledge and indeed to the main and fundamental facts within it.

The field of suggestion and inspiration is largely in the expressive work of the school. As expression makes knowledge vital, the range of activities is the vitalizing part of the course of study. It is not enough that the course of study states that the work in history for the fifth grade shall cover so many pages of such and such books, or that it shall include certain named topics; it should both suggest more topics than can be pursued, and should throw as many sidelights as possible upon the subjects, indicate sources of information, and point out possible correlations with other branches of study. It should suggest methods of approach and various means of illustration. Especially should it show how impressions may be deepened and clarified by the employment of the various arts of expression, as the writing of stories and representation with pencil, brush, and by construction.

In short, the course of study should not only indicate the subject matter to be taught, properly classified, but should also open the eyes of the teachers to all possible means for making the teaching effective, that, his imagination being stimulated, he may choose or originate the best available instruments and methods. If, however, these things are prescribed, that very fact makes them mechanical and impairs or destroys their efficiency.

Here is the opportunity of the superintendent in making the course to do his highest work, and for the teacher as well to do his highest work, for out of it are the issues of life.

To recapitulate: A course of study has two main purposes: to preserve the unity of the school system, and to serve as a guide to the individual teacher. For both of these ends it should be mandatory and prescriptive as to fundamentals, but broad, free, suggestive, and stimulating as to details and methods.

The course should require the teacher to study, both for a comprehension of its principles, and for culture.

It should be based upon a body of knowledge, and should indicate a range of activities. Prescription belongs chiefly to the former, freedom to the latter.

But thruout the course the spirit and aim must be manifest. If the aim is to perfect the machine, to enable the children to obtain "promotion" by passing a formal examination, that should be made evident at every step, so that the teachers may direct their efforts successfully, and waste none on iridescent dreams.

But if the aim is really the growth of children individually into knowledge, power, and civic righteousness, the course of study should make that plain at every step, that the teachers may be inspired by the high end, and may take account of the individual status and needs of the children.

It is needless to say that the latter is the point of view of the writer of this series of articles.

New York. CHARLES B. GILBERT.

English Composition in the Lower Grades

THERE is no subject in our public school curriculum which is so much dreaded and so poorly taught as English Composition. It is dreaded alike by teacher and pupil. Dreaded by the pupil because he has inherited the dislike from "those gone before," dreaded by the teacher because of the unresponsive attitude of the pupils, it has become a veritable bugbear to both. The atmosphere of most schools indeed is so charged with this dislike that the mention of composition makes the pupils bristle with resentment.

Composition from the utilitarian point of view is one of the most important of the common school studies. It is a direct part and parcel of the after-school life. If the primary aim of our public schools is to fit boys and girls for life, they are falling short of their duty in this respect.

The cause of the poor teaching seems to be best explained by the pupils' antipathy for the subject. This antipathy is not natural, it is acquired, for do not children delight in telling all they know about something they have seen, heard, or read? Is there not at every period of school life something which is of absorbing interest to the child?

The fault in the last analysis must lie in the methods in vogue. There has been no continuity, no plan, no regularity in composition work. At a certain period, about the fifth or sixth school year, the child has been asked to write *compositions*. The word itself frightens him, he has no previous training, indeed he does not know what to do, consequently he at once makes up his mind he does not like composition. Since psychology has commenced to interpret the problems of pedagogy, methods of teaching have been growing more intelligent. In this important subject "plan with definite end in view" is practically unknown. Most of the so-called "language books" have only served to add confusion to confusion, for in these books neither the teacher nor the pupil is taken into consideration.

What is needed first of all in composition is a definite plan with an end in view, and the entrance of the personal equation into the work. No one can embody in a book "language and composition work" which will do for different communities. If books are the basis of the work, then each school will need its individual text, yes, a new text for each pupil. In composition, perhaps more than in any other subject, the child's individuality must be taken into consideration.

The fact that the child is a growing organism is being recognized more and more by the teaching profession. Hence the teaching is becoming more of a director and stimulus. The composition work then must be suited to and made to follow the developing faculties and interest of the child. It is the plan of this article to show something of the child's interest and the nature of the work in which this interest may find expression.

One of the unique and valuable features of composition is that while it is valuable as an end in itself it serves as a medium for the expression of what has been gained in other studies, and as a medium for the development of certain habits of neatness, accuracy, research, reading, and yes, truthfulness.

FIRST YEAR.

The language work of the first year must of necessity be very *informal* and *altogether oral*. It is difficult to designate definitely what the nature of the work must be. If children had the same pre-school environment, the same tendencies, the same capacities, then the work might be definitely assigned. From the very nature of the child it is evident no set work can be prescribed.

The teacher must use the fund of story, information, and interest the child brings to school. Since the nature of this fund or stock of information varies so much in different children and in different localities, the teacher must be the best judge of the material to be used. One fact remains, that the child comes to school with a certain stock of very narrowly related ideas. It might be interesting to note the recent researches made in Germany, at Planau and Berlin, to determine what the children do bring to school. Similar investigations have been made in the United States. One writer says: "There are one hundred thousand children in the schools of Chicago to-day who can not tell a rose from a dandelion, or a daisy from a violet. There are children who go to the school where you can

> "Climb clear above the roof and look from the steeple,
> And never see a robin, nor a beech or ellum tree!
> ———" but the city! city! city!
> And nothin' but the city all around and ever'wheres!"

These children can tell nothing about the flowers of the field and the play in the meadows, of the shy animals of the wood or the domestic brutes of the farm, of the clear rippling brook or the merry chirping of the birds: but they can tell about their romps on the sidewalk, of the play in the park, of the busy streets or the markets teeming with life, of the theater or the factory.

There is, however, some common ground. The love of doll play is common to all girls whether living in the city or country, the city and the country boy alike have a fondness for ball, tag, and horse play. It is then this common and individualistic fund which must serve as the basis of the work. It is the plain duty of the teacher to know his child thoroly.

The result of all this can be stated thus: *The basis of the first year in language must be the fund of ideas the child brings to school.*

The work of this year must be altogether oral. The pupil can not yet write his story, but this is not the reason for the oral expression. Oral expression is the natural mode of communication. The boys can tell the teacher about the last ball game, and when not repressed can make it intensely interesting. The girls will tell the story of the doll house they have just left to go into the school-room. If they are allowed to tell about it to the teacher (what an idol she is to the little ones), how much happier they are and how much it decreases the pangs of having been compelled to leave "their children" when "that horrid tap" rang.

The great difficulty at this stage of the work will be the natural shyness of the children and their self-consciousness, evidenced by the high-pitched, monotonous tone. The small vocabulary will be a great hindrance, too. Tact on the teacher's part will overcome the shyness and the lack of words will be made up by very expressive gestures. It is surprising to see what vivid descriptions can thus be obtained and what interest the children show.

The next stage is the oral reproduction of stories told by the teacher. What must be the nature of the stories? Above all, they must be short and simple. Long stories can not be grasped. Complex stories can not be comprehended. The incidents and persons involved must be few in number. The story must be interesting. To be interesting it must come within the child's plane of experience. There must be some point or points of contact. What is the source of the story?

Unfortunately, much of our child literature is not child literature; the teacher must therefore invent his own stories. This is not so difficult as it may appear, for the child-loving and child-knowing teacher can invent the story. The life of the school, the home, and the playground are valuable sources.

The first stories for oral reproduction should be told with the object or objects mentioned in full view. If they be very familiar the child's imagination can be depended on. It is well, however, to aid the ear, then the eye, as much as possible. Take this story in the spring of the year. Have a peach blossom before the class. The story is not practicable when the child does not know the peach tree.

THE PEACH BLOSSOM.

All the long, cold winter the little peach blossom was closely hidden in the tree. The cold, white snow was on the branches and everywhere. The winds chilled it even when it was so snugly hidden. When the wind would blow it would shiver and say, "Will it never get warm? How glad I will be when the sun comes and drives away the snow." Then it would shiver and shiver, cuddle up more closely and try to keep warm. At last the sun came and drove away the snow. The little blossom felt the warm air and crept out little by little, until when it knew the sun had come to stay, it came out and showed itself to us. How pretty the blossom is!

This story has its points of contact. The child can readily understand why the blossom "cuddled up more closely" and waited until the sun had come to stay. The stories of such a nature have a value outside of the language use. John will take delight in a story in which his dog has a part, and Mary will be grateful if you take notice of her doll in the story. The walks which the teacher takes with the children not only awakens a love of nature but form material for the work.

It may be truly said, "*The success or failure of the first year language lies almost wholly in the teacher.*"

SECOND YEAR.

The second year work is in many respects similar to the first year work. In fact, the general features remain unchanged. The field, however, is broader and the child has become accustomed to tell his experiences, etc. Then, too, he has learned to write and this opens a new mode of expression. Writing is really a part of language, for it is our vehicle for the conveyance of thought. Missionaries laboring in Africa tell us how astonishing it is to the natives to find that men can read words from paper. It is a mode of expression unknown to them. In fact, it is interesting to note how primitive man is interested in this mode of expression. This same idea can be seized and used in dealing with the child at the "learning to write period." From being drudgery, writing becomes something to be much desired.

During the first half of the year there should be but little written work. The danger is not that the oral work be continued too long but that it stop too soon. It is in this work that the foundation is being laid for the future ability to express orally in forcible language, the thought and feeling of the man. Let the children tell stories similar to those of the first year. The general tone will have changed, for new interests have come.

The stories must follow the line of interest or the work will become distasteful. Spontaneity, which is so much to be desired, may thus be lost at the very beginning. The stories for oral reproduction must predominate for the first five months. The telling of the personal experiences must not cease as this is the first work in invention and it is important that it continue.

This is the period of child life when the imagination is showing signs of remarkable activity. It is the time when the pupil will exaggerate the smallest incident to great proportions. The writer was once compelled to punish a very unruly boy "by laying on of hands." In a few days he was surprised to find a rumor current among the little ones that "Mr. ——— wears iron gloves." This is the period when teachers will seriously doubt the future of their charges because of the wonderful tales they tell. It is the period of the unconscious lie. This stage, then, is pregnant with suggestion and one whose opportunities must be seized.

Now is the time to stimulate imagination in right lines and direct it, if the latter is possible.

No material is perhaps so valuable to stimulate imagination as the simpler myths and fairy tales. Now is the time to awaken the love of the beautiful in literature, an appreciation which once awakened helps to make a happy man or woman. Great care must be taken in selecting the material. Hawthorne's "Tanglewood Tales" are too long, but an adaptation of "Pandora's Box" will be interesting. In fairy tales, those of the Grimms have been found to be the most helpful. Andersen's must be relegated to a future period, together with Lang's "Blue Fairy Book." Even the tales from the Grimms must be carefully selected. Those tales involving animals such as "The Hen and the Hedgehog," "The Cat and the Mouse in Partnership," and "The Bird, the Straw, and the Coal," are suitable. Tales involving kings, princes, and fairy palaces must wait until the third year. The child will take a bitter medicine more because it has to than from a feeling that the medicine will relieve a pain. The story beyond the plane of the child is a bitter medicine that is never taken, accomplishing more evil than good. The judicious use of these tales will not only stimulate but develop the imagination. How often are children prosaic and matter of fact merely because every sign of a ripening imagination is rigidly repressed?

This material, the first half year, can be used as the basis of oral work. Written work can be done occasionally. After this, less of the fairy tale; the "picture card" comes into play. These picture cards should be about 7x10 inches. Pictures printed in two or three colors are to be desired because of their attractiveness. At the bottom of the picture should be the names of the objects and possible actions represented in the pictures. It is well to have qualifying and descriptive adjectives used in connection with the nouns.

Care must be taken in selecting the proper pictures. The pictures must be suggestive to the child. This again pre-supposes that the teacher thoroly knows her child, for then only does she know the picture that is suggestive. The objects and actions represented in the picture must be familiar ones, objects with which he has some *real associations* or may form *imaginary associations*. The ideal card is the one where the two elements are present. When the child has no associations in which some of the objects enter, he can not write, he has no starting point.

Let us take the picture of a boy on a velocipede with another boy standing by. At the foot of the picture can be such words as *John*, *Henry*, *velocipede*, *school*, *study*. Then a few sentences as:

John has a velocipede.
His father gave it to him.
He got it because he studied hard.
John and Henry will ride.

The picture is of itself suggestive, but the words and sentences are given to aid the imagination, to give a beginning. The sentences are given to relate the ideas. The pupil may write a story like the following one:

JOHN AND HIS VELOCIPEDE.

When John started to go to school his father promised him a velocipede if he studied his lessons well. John made up his mind he would get the velocipede, so he began to study real hard. His teacher saw how hard he was working, and when she saw his father, she said: "John is studying real hard now." John's father was very glad to hear this. At the supper table that night he said, "John, I want you to go down town with me after supper." His father took him to a store where there were many balls, bats, gloves, wagons, and velocipedes. His father called the man and said, "How much does this velocipede cost?" The man said, "Five dollars." Then John's father said, "I will take it." John was very glad he had studied his lessons. He hurried back and told his seatmate Henry, and now they are having a good time riding up and down the street.

The results of this work will at first be very crude. All of this work will have to be written, as it will take some time for the child to invent his story.

This is, in the brief, an outline of the second year work. The teacher must let the personal element enter into the work and guide and inspire during this important year.

(To be continued.)

Newark, Del. GEORGE S. MESSERSMITH.

☞Here is a word from Matthew Arnold for a teacher to ponder: "When people are interested in an object of pursuit, they cannot help feeling an enthusiasm for those who have already labored successfully at it, and for their success. Not only do they study them, but they also love and admire them. In this way a man who is interested in the art of war not only acquaints himself with the performance of great generals, but he has an admiration and an enthusiasm for them. So, too, one who wants to be a painter or a poet cannot help loving and admiring the great painters or poets who have gone before him, and shown him the way." How about the teacher?

The Autobiography of a Teacher

TO be at all willing to write one's autobiography is, I fear, to declare one's self garrulous; and to be garrulous is the undoubted hall-mark of old age. But in spite of this damaging testimony, I shall strenuously plead not guilty. In the first place it is well-known that teachers never grow old—the women remain girls, to the very end; and the men remain boys. When they fail to do this, they cease to be teachers. Despite the relative sedateness that comes when one reaches the forties, one must keep always a boy's heart. And then, in the second place, I do not propose to write a genuine, many-chaptered autobiography. It is not to be the record of a life, even of one so adventurous and interesting. It is to be the very partial and fragmentary record of one function of a life, just the teacher part of it. In my own case, and constituting I think such value as it may claim, the teaching has been only one out of several voluntary activities.

In this first paper I am minded to set down so much of my own early experiences, acted upon by the educational process, as afterwards gave color to my theory and practice when I came to be a teacher myself.

It is of little importance where and when I was born, and so I may as well say at once that it was in Philadelphia something over forty years ago. My mother had been born in Connecticut, and my father in Virginia. So it always seemed to me very natural and proper, geographically speaking, that I should be born in Philadelphia. But if it be true, as I am disposed to think, that girls very often resemble their fathers, and boys their mothers, this geographical accident counts for much less than does the fact that I had a New England mother.

In looking at teachers' lives in general, it has always interested me to wonder why those particular men and women should chance to be teachers. Was it a mere accident, or was it deliberate choice; or was it a combination of the two, part fate and part volition? In my own case, it seems to me that both forces were at work. In a very deep sense it was all fate and could not have been otherwise, since faith itself—birth and the appointed hour—determined what I am pleased somewhat inflectively, to call my choice. In an equally deep sense, it was all volition, since the will, wherever it originally gets its impulses, is the admitted arbiter, the caster of all final votes. At any rate, I like to feel that I am the representative of my ancestors, their ambassador to the present year of grace, but that I have, nevertheless, such large discretionary powers as to make possible some small individual contribution.

It is the time-spirit as well as the blood that determines a man's vocation. Every New Englander has the teaching passion in him: either active or latent. But under one set of circumstances the passion makes him a clerygman; under another a schoolmaster; under a third, a writer. It was with me, a matter of a generation. One generation earlier, and doubtless I should have been a clergyman. My forebears for two hundred years back had been ministers in the Connecticut colony. I am afraid that sometimes the preaching habit comes out in their descendant. I even considered for as much as a month or two at a time the propriety of taking Orders. As a young man I had come under the influence of the High Church movement. My Puritan ancestors would doubtless have been scandalized by so much show of ritualism. But, looking back upon the period thru the perspective of a score of years I cannot regret that the poetry and beauty of the church service kept alive in me what a stiffer logic might have failed to keep alive—a profound sense of reverence and of worship. It is quite thinkable that these might have gone under in the stress of newly accepted scientific knowledge, and in the dissolution of the more rigid forms of orthodox belief. It happened curiously enough that during this entire High Church period I was reading Spencer and Darwin and Matthew Arnold, that I was studying the various and rather perplexing sciences which go to make up the training of a geologist, and that above all, I was fairly steeped in the creed-dissolving thought of Emerson.

I cannot claim any consistency for the thought life of that period. But on the whole, I think that truth had a better chance of ultimately finding me than if I had been more defensibly established.

Religion is so large a part of the present age of a teacher that I may be pardoned for dwelling a moment upon the conditions of that period. The younger teachers of America can hardly realize the very narrow theological atmosphere which prevailed about the year 1880, and especially in so conservative, half-southern a city as Philadelphia. The theological pressure was very strong. The higher criticism was regarded as heretical and dangerous. The new scientific light which followed upon the research work of the middle of the century was held to be more than doubtful. An extreme orthodoxy prevailed in all accredited circles.

It was not the illogic of the old position which first aroused my own doubts, for as a young person I think I could not have been particularly logical. The revolt came from the feelings, from the heart. One was asked quite seriously to believe things of the divine government which no human government would tolerate and no moral individual sanction. The more alert among the younger men of a religious turn of mind were finding the church position too unaccommodating to be permanently acceptable. The doubts raised by one's own heart, and by one's growing intelligence were strengthened by such gentle iconoclasts as Emerson. The new light was in the open. The old darkness characterized the teachings of the orthodox churches. It seemed less and less possible to rank one's self with the resisting clergy. A generation earlier, these doubts would not have been uppermost. The same impulse which made me ultimately a teacher would then have made me a clergyman. I think the same might have been said of many another young man facing the life problem with any degree of earnestness in those confusing years which began the last quarter of the past century. It was not a lack of religion which kept them out of the pulpit, but an awakened and quickened sense of religion. God was outside, in the world, in the open. Within the sanctuary there was only a memory. Doubtless, some of these objections were theoretical and transcient. But I have never regretted that I was not born one generation earlier.

In addition to this general New England bent towards teaching, there were two very special individual forces at work. These centered in the personality of my mother. As a girl, my mother's one ambition was to teach. Such an ambition was common enough to New England girls in more intellectual families, but in my mother it amounted almost to a passion. Altho somewhat delicate, she persuaded her parents to allow the plan, and to send her to the well-known normal training school at New Britain. I have often wondered what the outcome would have been had my mother continued her course. That she would have been a great teacher, I have no doubt, for she saw things with astonishing lucidity; and, in addition, she had the divine gift of making every one love her. Perception and sympathy make great teachers. As it was, my mother's normal course was interrupted,—by delicate health, I think,—and before it was resumed, fate, in the person of my father, had persuaded her to a different destiny. Her interest in teaching never waned. I believe that she never taught officially a day in her life, and seldom gave my sister and me anything like formal lessons, but she was in effect, our education. The opportunity for a highly intellectual life never came to my mother, but the essential impulse was always there. In looking back upon my boyhood I marvel that with the slender means at hand, she accomplished so much. She was fond of all the larger aspects of life, of travel, of horseback riding, of steamships, of music, of the drama, of reading, of the sea, of mountains, above all, of broad-minded and interesting persons. My mother was almost devoid of fear. She was an excellent horsewoman, and rode with perfect safety, animals that would have been even dangerous for timid riders. She was also beautiful, and this not only to me, an absolutely devoted admirer, but as well to less prejudiced friends. Together with these purely human qualities, my mother possessed, as befitted the daughter of a long line of colonial clergymen, a very deeply religious nature and an abiding interest in all the things of the spirit.

In spite of her strong personality, my mother would have had little influence over me had it not been that I not only admired all she stood for in conduct and ideals, but loved her with a devotion which I may properly describe as boundless. Between us there existed an ideal comradeship which sanctioned both lives. A man can never think meanly of himself if he has known the love of a mother at once good and brave and beautiful. While I was still a young man, my mother passed quite suddenly into the undiscovered country, and for some years I remained as one paralyzed. She was but fifty, in her very prime, and had never seemed to us so perfect. When at last the tide of life returned to me, devoid of bitterness but also devoid of the old eagerness, I found that the memory of this unique comradeship came to be a motive power in all my own activities. And gradually a sense of regained comradeship has taken its place among the realities of my life. Even now, after nearly a score of years, I feel the presence of this gracious spirit, and at times can hardly persuade myself that she is no longer in the flesh.

This intimate personal and spiritual bond made it almost inevitable that I should be a sometime teacher and a constant experimentalist. In finally declining the ministry, however, I did not at once take up teaching. Indeed, at college, I remember that I expressly scouted the idea of being a teacher. I never came under the influence of a really great teacher, and was much more impressed by the dreary monotony of the life than by its opportunities. Original research seemed to me not only more interesting, but on the whole a more commendable way of spending one's days. The beauty of the teacher's opportunity has since come to me in overwhelming force, and I count myself happy to have been a teacher for a full dozen years, to have my summer work still, and to have been, I hope, something of a teacher in all my writings. But the old feeling persists that teaching should be one function of a life, not the whole life. It is better to teach intermittently, let us say, or else to teach for a period, rendering one's best contribution, and then to pass on to some other serious occupation. This may be only a modern phase of the old New England anxiety about saving one's own soul; but if so, I should defend it on the double ground that it *is* a man's prime business to save his own soul, and also that it is only the souls that are saving themselves that can help to save others.

I had meant when I first went to college, to be an architect. I think I might have been a fairly good one, for I had some native sense of proportion. This interest in form has never died and has added immensely to the pleasure of foreign travel. I still design my own buildings and some of my own furniture. I am not sure that these efforts would meet the approval of more thorogoing artists, but they have given an interest and reality to my habitations that nothing else could quite give. The sense of color is relatively less developed and more uncertain; and I have noticed a curious parallelism in matters of sound, that is to say, a keener appreciation of rhythm than of pitch. I can detect any jolting in the time, more surely than any sharpening or flattening of the notes. This developed sense of form is doubtless connected with the fact that I have what may be called a visual type of mind. Life presents itself to me as a panorama. I remember in pictures. It is also the probable basis of my uncomfortable passion for orderliness. But I never put my architectural pretensions to any official test. At college I met the natural sciences for really the first time in my life, and after something of a struggle yielded to their superior attractions and broader vistas. I went, as the majority of Philadelphia boys who essayed college at all also went, to our home institution, the University of Pennsylvania. I had always wanted to go to Harvard, but it suited the family better to have me remain at home. At the University, I had the good fortune to come in contact with several men born and trained in Germany. Being myself a pronounced dreamer and idealist, this contact with laboratory methods and results was a most valuable corrective, and kept me, I hope, from the looseness of thought which sometimes goes with the dreamy temperament. It seems to me that every student, whatever his ultimate plans, would do well to go in for at least one or two stiff laboratory courses. It does not take long to master the large and pregnant facts in physics and chemistry, biology and astronomy, and they do act as a very steadying ballast when one is embarked on later seas of speculation. My own knowledge of these sciences is still very elementary, but what little I do know has added much to the delight of life, and made the world one of greater order and beauty. The moral effect, too, is bracing. An imagination which ranges over the solar system has little bent for petty and unworthy attitudes. The great lesson which the natural sciences have to teach is an appreciation of cause and effect, and this appreciation is, I think, a fair gauge of one's intellectual progress.

I graduated a few months after I was twenty, too young I think by at least two years, but the performance was in no way remarkable and indicated no precocity. The entrance requirements were much less exacting than at present. What was of interest as having a large influence upon my own subsequent teaching work was the curiously fragmentary preparation that preceded college. In all my life—and I was then sixteen—I had been to school but two years. This was not the result of any definite plan on my parents' part, but was rather the accident of delicate health. At sixteen, I was a curiously undisciplined person intellectually speaking, but a very alert one. For one thing I was untired. I had all the enthusiasm for study which the average boy has for play. I had been to school so little, had had so little of the dull grind which then befell the luckless schoolboy, that study was to me a luxury, and I jumped into my college life with a zest which the better prepared but less enthusiastic boys of to-day can hardly appreciate. The actual work of college preparation occupied but five months. I had not been inside of a school for something over a year. I had read. I had traveled a bit. Above all, I had been with my brave and beautiful mother. I began the work in January and the examination came in the following June.

I attended the so-called University class in one of the city grammar schools. I was fortunate in having a devoted master who treated me quite as a private pupil. His assistants were equally kind. I was not I think, a lovable child, certainly not what I should now consider lovable, and I was at sixteen very much of a child. But I probably came as a rather refreshing specimen of the untired and still enthusiastic student. My comrades of that period had been to school for many years, and the most of them looked upon the whole process of education as both questionable and dreary. They knew vastly more than I did, but as I recall their attitudes, and compare it with my own joyous, intellectual curiosity, I am humbly grateful to the kind destiny which kept me ignorant but left me alert. At that time, however, I felt it a distinct disadvantage and rather pitied myself for being such an ignoramus. In particular, I remember looking with wonder and admiration upon certain boys who could parse with some degree of assurance. Parsing was to me a veritable black art, and I never mastered its mysteries, if I ever mastered them at all, until well into the college period. I studied French outside.

At school, I had the usual English branches, together with a couple now seldom separately taught—Greek and Latin etymology and ancient geography. We studied no other Latin and Greek, and no German. In mathematics, we had advanced arithmetic, elementary algebra, and plane geometry—a fairly stiff bit of work for five months. The geometry bothered me, and so I hit upon a device which has ever since struck me as foolish beyond most boyish devices. I must have had a good memory, for I learned the first four books of Chauvenet's geometry literally by heart. My sense of form made it easy for me to memorize the diagrams. I followed the exact lettering. A modern teacher would, of course, have detected so dangerous a practice and put a summary stop to it. If my own literalness was noticed, it was doubtless counted admirable scholarship and stamped me as a very good little boy. By this device, I might have passed a creditable entrance examination in geometry without knowing the first thing about the subject. As a matter of fact, I believe I did understand all the propositions but one, and that came to me after I got to college. Afterwards I became so interested in the whole subject that I went in for the prize in modern geometry, and more surprising still, won first place.

The entrance examination came the middle of June. My father, meanwhile, was having rather serious business troubles, and the burden of my college expenses promised to fall for the most part upon my mother. In this emergency the chance to compete for a four-year scholarship was most welcome. The examinations were in some respects a trifle more difficult than those provided for the regular matriculants, but they must have been easy enough in all conscience, for I won the first scholarship and was proud accordingly. I mention the fact, not because I am still proud, for in reality the other boys were not dull, and I assuredly was not clever. I mention it solely because of its bearing upon my later educational views. The winning of the first scholarship was really a triumph but it was the triumph of a method, not a personal triumph. Before beginning the preparatory work, I had never been to school for five months consecutively. My total school life, then less than two years, was made up of very small fragments. Yet in five months it was possible for a delicate, technically ignorant boy to outstrip boys who had been to school for six or eight years continuously. The whole secret, I think, lay in the fact that in my case the spirit was involved, the heart, and such knowledge as I possessed was vivid and real. In a word, intellectual curiosity had never been killed, and the motive power for study was still strong.

In those early days, 1878-1882, there were no such things as electives as we now understand the term. In the scientific department, we all had the same studies for the first two years. At the end of that time, we all specialized, meeting for the culture studies, but separating into groups for the more special studies of our prospective professions. The selection was made at the beginning of the junior year. I shall always remember the stress and strain of that long vacation between the sophomore and junior years. I spent the greater part of the vacation with my mother and sister among the mountains of western Maryland. I was sadly torn between the rival claims of architecture, of geology, and civil engineering. I spent many perplexing days wandering over the beautiful hill country that surrounds McHenry, or riding hard, sometimes alone, sometimes in company with my mother. The experience gave me a large sympathy for the vast army of young men, who, with wholly insufficient knowledge, are called upon to make these fundamental and far-reaching decisions.

The final decision in my own case was for geology. The feather that turned the scale was the reading of Sir Charles Lyell's "Elements of Geology." It is published in two large volumes, bound in bright green, and has ever since seemed to me a fateful book. In reading Darwin's "Life and Letters" several years later I was interested to find that the same book had practically determined him upon a scientific career. In my own case, the determining cause was really subjective. It was not alone or even mainly the fascination of geology itself. The decision resulted from a study of the requirements of the geologist as outlined by Lyell. I read with enthusiasm that to be a good geologist, one must be proficient in eleven major branches! You will find them enumerated in the early part of the book. It was highly characteristic that such a consideration should settle the matter, for I have always been more enamored of the forest than of the trees.

In many ways it was a jump in the dark. I was much too young and inexperienced to make such a grave decision. That it turned out to be a fortunate decision hardly saves it from being merely a happy accident. My own strong impulse now is to keep boys from just such premature decisions. Unless some particular bent is so remarkable as to indicate undoubted genius, the wiser undergraduate course seems to me a general balanced scheme of study of the broadest possible kind. One must taste a varied knowledge before pronouncing for or against any particular branch. Modern life is far too complex to allow a mere boy to pass sound judgment upon it and decide his own acceptable share in its activities.

The college life of that period now looks distinctly old-fashioned. Having chosen geology, the next two years were given over to the prescribed studies of the course. In view of my own inexperience, I think this was for me the best possible plan. Geology in its broader aspects, crystallography, mineralogy, metallurgy, general and analytical chemistry, physics, civil engineering, drawing, mechanical engineering, a touch of paleontology and forestry, mathematics into the calculus, together with French, German, English, logic, economics, and a few paler culture studies gave us a many sided, and I think a wholesome, introduction into the more systematic life of the spirit.

We went to the University every morning at nine and worked usually until four o'clock, sometimes until six. Saturday mornings were given to surveying and laboratory work. It was a fairly strenuous life, but I cannot remember that we were overworked. For one thing, it went with a very simple home life. My father had a deeply rooted aversion to weak eyes, and partly on account of my not very robust health, and partly to avoid the possibility of a red-eyed son, I was never allowed thruout my whole college course to study later than ten o'clock! It seemed to me a great hardship at the time, but I have since been very grateful for it. From what I have seen of modern undergraduate life at Harvard, I think that very little study is done there until *after* ten.

The course in geology was undoubtedly a hard course, for it involved such long hours in the laboratory and drawing-room, and home work in so many and such varied branches. It was only the great simplicity of the home life that made such an exacting regime wholesome or even possible. I studied every night except Friday, and then we often had a small company of young people at our own house. Very rarely I went to a theater or to a concert. It amuses me to recall that with such an abstemious life I should have felt it necessary to observe Lent and practice such small austerities as going without sugar or butter. On Ash Wednesdays we Episcopal boys were rather the envy of the others, for the University granted us a holiday on condition that we attended morning service. It was a simple, industrious life, and slow as it might appear to present college boys, it was on the whole, a very happy life.

The great source of my own happiness was, of course, the ideal comradeship with my mother. It was literally true that she was interested in every detail of my life. Altho quite delicate herself, she was almost masculine in her contempt for all weakness and unmanliness. Such great love as she gave me might easily have blinded her to my otherwise very obvious faults, but I cannot recall a single instance where she lowered her standards or pampered me in any way. This is the more remarkable because I was a timid, shrinking boy and must have been quite far from her ideal of what a boy ought to be. She wanted me to be strong and brave and good, and wanted it with such intensity, that she allowed, even encouraged me, to undertake adventures which must at the time have filled her with grave anxiety and would have appalled less sturdy mothers. As a teacher of boys I have come in contact with the mother-love in many forms and have come to rank it as one of the great forces of the world, but I have also come to discriminate, and to see that there is a mother-love which makes for strength, and a mother-love which makes for weakness. The one is so deep and wise that even the teacher catches only occasional glimpses of it. The other is one of the genuine obstacles with which he must reckon. My mother had never read Emerson, I think, but she literally exemplified his great doctrine and feared nothing but fear. If I am myself reasonably devoid of fear, it is due wholly to the fact that my mother absolutely declined to allow it in either my sister or myself. It was, in fact, my mother's help and sympathy that enabled me to pass thru college with credit, and to win first place eight out of the twelve terms which then constituted the undergraduate four years. This comradeship remains always as the great light of those boyish days, as it was of my early manhood. One who has never known such a perfect friendship has not known what it is to live; and one who has known it, can never again be poor, for he has at least the memory.

Looking back at my own college life and regarding the current college life around me, I cannot help feeling that despite its undoubted beauty it is eminently qualified to make boys very selfish. I am appalled when I recall my own selfishness. The duties are so exacting that by common consent the college boy is practically excused from all other duties. When he is not studying, it is the current theory that he ought to be playing. I was myself safeguarded on all sides. Other members of the family saw unwelcome visitors; other members of the family attended to the necessary errands of the household; other members of the family sacrificed their own time to those numberless concessions which even a well-to-do family must make to the practical side of life, and all that I might be spared and that my time might be harbored. I did not do my proper share socially. The hopelessness of the situation was that none of us saw it, not even my far-seeing mother. I think I counted as a model son. I mention this aspect of college life, this grave defect from my present more social point of view, because I see the same thing going on all around me. I can see very plainly now that this complete absolution from all social and family duties gave me, all unconsciously, wholly false ideas of the value of my own time, and a far too great impatience of any interruption. It has taken many years to overcome this feeling, this quite unpardonable selfishness, and doubtless it will never be completely overcome until some succeeding incarnation. It is really too bad to teach boys and girls everything except the one supreme art, the art of daily living. As then conducted, and as now conducted, college life does tend to make young people selfish. With the growth of a mere social conscience, we shall soon be obliged to be finding an effective way out of the difficulty.

But this shadow on my college life is only a shadow in retrospect. I did not see it at the time. I was conscious only of my happy home life, of my genuine delight in all intellectual matters, and of the very wonderful adventures made possible by the long vacations. But of these latter I must speak in the next paper.

C. Hanford Henderson.

The city of Cleveland has at last decided to place the salaries of its teachers on a somewhat more satisfactory basis. The total increase amounts to something like $50,000, for which ample provision has been made. Four grades have been established. Continued service will automatically advance teachers from the first to the fourth grade, but teachers can be promoted from one class to another only upon the recommendation of the Superintendent and the approval of the Board. Hereafter the lowest salary to be paid teachers of the first grade for their first year of service will be $500. After four or more years of successful experience they may be advanced to the second class with a minimum salary of $675.

Under the new schedule a teacher may continue to serve in any division of the system and be advanced thru the successive grades. The Cleveland plan is rather more satisfactory than most of the others which have been instituted in recent years.

It is easier to bring something down than, having laid it low, to raise it up again.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

READING.

1. In oral reading what is the basis for determining whether the time should be *slow*, *medium*, or *fast?*

2. On with the dance! let joy be unconfined;
No sleep till morn, when Youth and Pleasure meet
To chase the glowing hours with flying feet—
But, hark!—that heavy sound breaks in once more,
As if the clouds its echo would repeat;
And nearer, clearer, deadlier than before!
Arm! arm!—it is!—it is!—the cannon's opening roar.—*Byron.*

Copy the above selection and indicate thereon where the time should be *slow*, *medium*, *fast*.

3. Copy the following and mark for inflection:

Most of all, fellow citizens, if your sons ask whose example they shall imitate, what will you say? For you know well it is not music, nor the gymnasiums, nor the schools, that mold young men; it is much more the public proclamations, the public example.

4. At what age and in what way may melody of voice be most easily cultivated?

5. What is enunciation? Mention two common errors in enunciation.

6. Tell what key should characterize the reading of each of the following selections; give reason in each case: *Hamlet's Soliloquy*, *Barbara Frietchie*, *Paul Revere's Ride*, Webster's *Bunker Hill Oration*, *Mrs. Caudle's Curtain Lectures*, Poe's *The Bells*, Tennyson's *The Brook*.

7. Mention and define three qualities of voice.

8. Thou art not in Afrasiab's garden now
With Tartar girls with whom thou art wont to dance;
But on the Oxus sands, and in the dance
Of battle, and with me, who make no play
Of war; I fight it out, and hand to hand.
Speak not to me of truce, and pledge, and wine!
Remember all thy valor; try thy feints
And cunning! all the pity I had is gone;
Because thou hast shamed me before both the hosts
With thy light skipping tricks, and thy girl's wiles.—*M. Arnold.*

What quality of voice characterizes the reading of the above selection? What conditions are essential to produce this quality?

9. Mention a selection suitable for memorizing in (*a*) primary grades, (*b*) grammar grades. Tell why each is suitable.

10. Divide the following words into syllables and indicate both primary and secondary accent: *rebel* (noun), *congratulations*, *indefatigable*, *envelop* (verb), *contractor*.

ANSWERS.

1. It depends on the importance of the thought—the mind's measurement of the thought. If the thought is weighty, hard to understand, the time is slow; if the thought is light, trivial, a repetition of ideas, the time is fast. Ordinary conversation, description, etc., are in medium time. The sentiment of the selection also influences the time: grandeur, awe, deep anger, or fear is expressed in slow time; haste, excitement, joy, in fast time.

2. On with the dance! *f* let joy be unconfined;
No sleep till morn, when Youth and Pleasure meet
To chase the glowing hours with flying feet—*m* or *f*
But, hark!—*s* that heavy sound breaks in once more,
As if the clouds its echo would repeat; *m*
And nearer, clearer, deadlier than before! *s*
Arm! arm! *f*—it is!—it is! *s*—the cannon's opening roar. *m* or *f*.

f, fast, *m*, medium, *s*, slow.

3. Most of all, fellow citizens, if your sons ask whose example they shall imitate, what will you say? For you know well it is not music, nor the gymnasiums, nor the schools, that mold young men; it is much more the public proclamations, the public example.

4. In the early school grades. Give selections that are interesting to the pupils and such as require melody in reading. The teacher should be a good model for pupils to imitate in reading. Pupils should repeat vowels in various ways, as pleasantly with inflection on different notes of the scale, etc.

5. Enunciation is the distinct, clear, full utterance of the sound of words; it is fullness and distinctness of articulation.

Errors: Blending the termination of one word with the beginning of the following word; suppression of the final letter, as *g* in singing, etc.

6. (*a*) Low; meditative, serious thought and feeling. (*b, c*) Medium to high; clear narrative. (*d*) Low to medium; grave solemn thought seeking to convince. (*e*) High; shrill tone, petty anger or irritation. (*f*) High to middle; light, joyful. (*g*) Medium; descriptive.

7. The pure tone is a clear, smooth, round, flowing sound, accompanied with moderate pitch; the orotund in the pure tone deepened, enlarged and intensified; the gutteral is a deep undertone.

8. Gutteral to show anger, contempt, etc.

9. Answers will vary.

10. *Reb'-el*, *con-grat'-u-la'-tions*, *in'-de-fat'-i-ga-ble*, *en-vel'-op*, *con-ract'-or*.

PHYSIOLOGY AND HYGIENE.

1. Mention three common causes of decay in teeth.

2. Give the location and use of each of the following: triceps muscle, clavicle, tendon of Achilles, Eustachian tube.

3. What three bony projections serve to protect the eye?

4. What is reflex action and what purpose does it serve?

5. Describe the cilia of the air passages of the lungs. What purpose do the cilia serve?

6. In the case of every house having connection with a sewer what provision should be made to prevent the entrance of sewer gas?

7. Show (*a*) the relation of the skin to the other organs of excretion, (*b*) the harm that may result from a sudden checking of the perspiration.

8. In what injurious way does alcohol affect the kidneys?

9. Name the different classes of permanent teeth and give the number of teeth in each class.

10. Describe the systemic (greater) circulation, using a diagram if desired.

ANSWERS.

1. Particles of food allowed to ferment between the teeth. Saliva deposits, called *tartar*. Breaking the enamel by cracking hard substances with the teeth.

2. The triceps muscle extends down the back of the arm from the shoulder to the elbow. It straightens the elbow. The clavicle, or collar bone, extends from the outer angle of the shoulder blade to the top of the breast bone. It holds the shoulder blade firmly in place and by keeping the shoulders wide apart, it gives the arm a freer range of motion. The tendon of Achilles is a strong tendon of the calf of the leg. It connects the great muscles in the calf of the leg with the heel bone. The Eustachian tube leads from the throat to the middle ear, or tympanum. It keeps the air pressure the same on both sides of the ear drum, or *membrana tympani*.

3. Malar bone, frontal, nasal.

4. Reflex action is motor action of a nerve center in response to a stimulus without the co-operation of consciousness. Reflex action is designed to protect the body from injury and supply its needs.

5. Cilia are microscopic hairs covering the mucous membrane. They are slightly curved upward and their rapid up and down motion tends to force dust and mucous away from the lungs.

6. A water trap should be formed by bending each pipe connected with the sewer, into a loop which remains full of liquid and prevents the entrance of gas.

7. (*a*) The skin excretes a small portion of salts, a little carbon dioxid, and a large amount of water, in the form of perspiration. In this respect it supplements the work of the lungs and kidneys.

(*b*) It causes a sudden readjustment of the circulation and of the excretory processes. This is often attended with congestion and sickness.

8. Alcohol, depriving the albumen of the food of oxygen, is liable to cause poisons to be produced from the imperfectly oxidized albumen. The kidneys try to excrete the poisons, but they become overworked, producing what is called Bright's disease.

9. There are eight teeth on each side of each jaw as follows: incisors 2, canine 1, bicuspids 2, molars 3; thirty-two teeth altogether.

10. The blood passes from the left auricle thru the mitral valve into the left ventricle. Thence it is forced thru the semilunar valves into the aorta. From the arteries it passes thru the capillaries to the various tissues of the body and thence by the veins it returns to the right auricle of the heart.

PHYSICS.

1. Describe and illustrate by diagram (*a*) visual angle, (*b*) angles of incidence and reflection.

2. Describe an experiment to determine the velocity of sound in air.

3. Describe a laboratory experiment to show the lines of force in the case of a bar magnet. Show by diagram the magnet and the lines of force.

4. Define (*a*) force, (*b*) energy, (*c*) horse power.

5. Find the weight in water of a body whose specific gravity is 5 and whose weight in air is 60 pounds.

6. Illustrate by diagram the different kinds of levers. State the mechanical advantage of each.

7. If a power of 60 pounds sustains a weight of 160 pounds on an inclined plane 15 feet long, what is the height of the plane?

8. Mention three conditions that affect the boiling point of water.

9. Compare liquids, solids, and gases as conductors of heat.

10. On what principle does heating by electricity depend?

ANSWERS.

1. "The visual angle is the angle formed by two rays of light, or two straight lines drawn from the extreme points of an object to the center of the eye."—*Webster*. The angles of incidence and reflection are the angles that the line of incidence and of reflection respectively make with a line drawn perpendicular to the reflecting surface. See text-books for diagrams.

2. Observe the interval between the time when the flash of a gun is seen and the instant when the report is heard. The distance between the two stations divided by the time in seconds will give the velocity of sound at the temperature when the experiment is made.

3. Cover a bar magnet with a large card or glass plate and sprinkle uniformly over the card or glass very fine filings of wrought iron. Gently tap the card or glass and the filings become arranged by induction in peculiar curves which indicate the direction and intensity of the magnetic force. This experiment shows that the magnetic force is greatest near the ends of the magnet. See text-books for diagrams.

4. Force is that which tends to produce, to change, or to destroy the motion of a body.

Power is the power of, or capacity for doing work.

Horse power is the power to do 550 foot-pounds a second.

5. 60+5=12 pounds, the weight of an equal volume of water which would be displaced by the body. By the principle of Archimedes: A body submerged in a fluid is buoyed up by a force equal to the weight of the fluid displaced by it. Hence 60—12=48 pounds.

6. First class—power and weight at the ends of lever and the fulcrum between them.

Second class—power and fulcrum at the ends of lever and the weight between them.

Third class—weight and fulcrum at the end of lever and the power between them.

In the first and second class as ordinarily used we gain power and lose time; in the third class we lose power and gain time.

7. 60 : 160=x : 15
$x=5\frac{5}{8}$ ft.

8. (*a*) Purity of the water, (*b*) nature of the containing vessel, (*c*) amount of pressure upon the surface of the water.

9. Solids are good conductors of heat; liquids have very low conducting power; gases have still less conducting power than liquids.

10. Transformation of energy. The heat is due to the resistance of the conductor. When current electricity is stopped by resistance the electric energy of the current is transformed into heat.

ENGLISH COMPOSITION.

1. Give and illustrate two special rules that are included under the following principle: Clearness requires that the parts of a sentence —words, phrases, and clauses—should be arranged so as to leave no doubt as to the author's meaning.

2. Rewrite the following sentences, condensing the italicized clauses into equivalent words or phrases:

a After a siege, *which lasted* 50 *days*, the Russians retreated.

b My burden is *so* heavy *that I can not bear it.*

c There is a time *when one may work* and a time *when one may rest*

d The man *that is wise* does not waste opportunities.

e The house can not fall *for it is founded on a rock.*

3. Explain how each of three of the following contributes to emphasis, or strength: (*a*) climax, (*b*) antithesis, (*c*) inversion of words, (*d*) brevity of statement, (*e*) repetition. Illustrate.

4. What is meant by each of the following: (*a*) outline for a composition, (*b*) topic sentence, (*c*) paragraph?

5. State how the italicized words in the following pairs of sentences differ in meaning.

a He *would* do it if it were necessary. He *should* do it if it is necessary.

b He *shall* do it immediately. He *will* do it immediately.

c He was chosen by *unanimous* consent. He was chosen by *general* consent.

d He regarded it as a *politic* move. He regarded it as a *political* move.

e He showed great *endurance*. He showed great *fortitude*.

6. Select from the following three examples showing the different uses of the present tense and state how it is used in each of your selections:

a Daily, with souls that cringe and plot,
We Sinais climb and know it not.

b The President speaks in New York to-morrow.

c Where did you say Mt. Hood is?

d I see again, as one in vision sees,
The blossoms and the bees,
And hear the children's voices shout and call.

e I am happy to see you.

7. Write for a newspaper a short account of one of the following: a fire, the meeting of a literary club, an accident caused by a runaway, a lost child restored to its home.

8-9. Write a paragraph describing in your own words the day and scene suggested by the following lines:

After a day of cloud and wind and rain
Sometimes the setting sun breaks out again,
And, touching all the darksome woods with light,
Smiles on the fields, until they laugh and sing,
Then . . . .
Drops down into the night.

10. Give and illustrate (*a*) four uses of capitals, (*b*) one use of the colon, (*c*) two uses of the apostrophe, (*d*) two uses of the hyphen.

ANSWERS.

1. Words, phrases, and clauses that are closely related should be placed as near to each other as possible. Ex. *Sitting on the piazza,* I counted twenty meteors. Pronouns should follow the noun to which they refer without the intervention of another noun. Ex. The man *who* betrays his country is a traitor.

2. Condense the italicized clauses to the following: (*a*) *of fifty days*, (*b*) *too heavy to bear*, (*c*) *for work and for rest*, (*d*) *wise* (adjective modiefir of *man*), (*e*) (The house) *being founded on a rock.*

3. Climax arranges its parts in the order of their strength, the most forcible standing last and making the deepest impression. The last impression being the impression of the whole that the reader or listener carries away. Ex. "I came, I saw, I conquered." Antithesis gives strength to discourse by contrasting things mutually opposed in some particular. Ex. In peace, children bury their parents; in war, parents bury their children. Inversion of words contributes to strength

on the principle that what is unusual attracts attention and becomes prominent. Ex. Sweet are the uses of adversity. Brevity of statement secures energy because words are often a hindrance to the thought. The strongest effects are expressed by interjections. Ex. "A Daniel come to judgment!" Repetition gives strength by repeating the impression made on the reader or listener. Ex. Daily the tides of life go ebbing and flowing beside them.

4. (*a*) An orderly arrangement of the topics or points to be discussed in the composition. (*b*) A sentence in a paragraph that brings out distinctly and prominently the important thought of that paragraph. (*c*) A connected series of sentences which all tend to develop a single topic.

5. (*a*) *Would* denotes that he acts of his own volition; *should* denotes that it is a duty or obligation imposed by external circumstances. (*b*) *Shall* means that he will be compelled to do it by some external influence; *will* denotes simple futurity. (*c*) *Unanimous* means with no dissenting voice; *general* means by consent of nearly all. (*d*) *Politic* means wise; *political* means necessary for the government of city or country. (*e*) *Endurance* is the act of continuing under pain or distress without resistance; *fortitude* is the strength which enables a person to bear pain or adversity.

6. The present tense is used in these sentences to denote as follows: (*a*) What frequently or habitually takes place, (*b*) What is to take place in the future, (*c*) what is past or actually taking place in the present, (*d*) what is actually present.

7-9. Answers will vary.

10. The first word of a sentence, all proper names, the name of the Deity, and the pronoun I should begin with a capital letter.

Ex. *May I* have the *God* of *Jacob* as my protector.

(*b*) Place the colon before an enumeration of particulars. Ex. The races of men are as follows: Caucasian, Mongolian, etc.

(*c*) Denotes possessive case. Ex. boy's; denotes the plural of letters and figures. Ex. a's, 9's.

(*d*) A hyphen is used to join parts of a compound word and between the syllables when a word is divided. Ex. *jury-system*, *cit-i-zen*.

GEOGRAPHY.

1. Show by aid of a diagram the limits of the oblique rays of the sun at the time of (*a*) the summer solstice, (*b*) the winter solstice. What are the limits of the sun's vertical rays?

2. Compare the Atlantic Coast of the United States with the Pacific Coast in respect to (*a*) extent, (*b*) climate, (*c*) facilities for commerce.

3. Great Britain has been denominated "the distributer of the world's products." Mention three natural advantages that have contributed to make Great Britain thus distinguished.

4. Give three important reasons for the phenomenal growth of Chicago.

5. Name and lacate four important insular possessions of the United States.

6. In reaching the city of Mexico from the Gulf of Mexico, at what seaport would one probably land? At what port would one land in reaching it from the Pacific?

7. Mention in regard to Japan (*a*) its commercial advantages, (*b*) its agricultural disadvantages, (*c*) its capital and its chief port of trade.

8. Name three nations holding possessions in Africa. To what European nation does Madagascar belong and what body of water separates this island from the mainland?

9. Name two large cities or towns of New York State whose growth has been largely influenced by (*a*) good harbors, (*b*) waterfalls, (*c*) local products, (*d*) junction of railroads.

10. Draw an outline map of the United States and indicate thereon sections of (*a*) abundant rainfall, (*b*) medium rainfall, (*c*) little or no rainfall.

ANSWERS.

1. (*a*) The Antarctic circle on the south and 23½° beyond the north pole, (*b*) the Arctic circle on the north and 23½° beyond the south pole. The Tropic of Cancer on the north and the Tropic of Capricorn on the south. (See text-books for diagrams.)

2. (*a*) The Pacific (including Alaska), (*b*) The Pacific Coast has a milder climate. (*c*) The Atlantic Coast has superior facilities for commerce.

3. Its insular form furnishing many fine harbors; abundance of iron and coal; its proximity to the populous and wealthy nations of Europe.

4. Water connection eastward to the Atlantic and southward to the Gulf. Proximity to extensive iron and copper mines. The point where the products of the Northwest pass around Lake Michigan in railroad transportation for the East.

5. Philippine Islands, southeast of Asia. Porto Rico, east of Haiti. Hawaiian Islands, southeast of San Francisco. Guam, east of the Philippines.

6. Vera Cruz. Acapulco.

7. (*a*) Its insular position and its proximity to the developing trade of China. (*b*) Its mountainous and volcanic surface. (*c*) Tokio. Yokohama.

8. (*a*) Great Britain, France, and Germany. (*b*) France, Mozambique Channel.

9. (*a*) New York, Buffalo. (*b*) Niagara, Little Falls. (*c*) Oleon, Saratoga. (*d*) Hornellsville, Lyons.

10. On the Pacific Coast of the States of Washington and Oregon, abundant rain; the valley of the Mississippi and eastward, medium rain; southwestern part of the United States, little or no rainfall.

ARITHMETIC.

1. The census of 1905 gives the total inhabitants of a certain county of 16 towns as 31,355. Seven towns show an increase since 1900 of 62, 44, 27, 38, 213, 1,047, and 128 respectively. Nine towns show a decrease of 43, 153, 25, 107, 28, 115, 46, 59, and 58 respectively What was the number of inhabitants in 1900?

2. One-half the sum of 2⅓ and 3½ is how many times one-third of their difference?

3. A floor is 12 ft. 6 in. by 11 ft. 4 in.; compare the cost of covering it with yard wide matting at 45 cents a yard, the strips being laid lengthwise, with the cost of finishing and painting it at 50 cents a square yard.

4. Find the cost of excavating a ditch ½ mile long, 3 ft. deep, 6 ft. wide at the top, and 4 ft. wide at the bottom, at 8 cents a cubic yard.

5. A school-house is built at a cost of $16,000; the property of the district is assessed at $1,000,000. What is the rate of taxation and what is A's tax whose property is assessed at $8,000?

6. An invoice of imported gloves amounts to $500 on which 50 per cent. ad valorum duty is collected; if the importer sells to the retailer dealer at 33⅓ per cent. advance on the gross cost, how does his profit compare with the duty paid the Government and how does the cost to the retail dealer compare with the first cost?

7. At what price per dozen pairs must I buy gloves to retail them at $1.25 a pair and realize a profit of 20 per cent?

8. A, who works one-half as fast as B, can do a piece of work in 5 days; how many days will it take A and B working together to do the work?

9. What is paid for stock yielding 10 per cent. if 6 per cent. is realized on the investment?

10. A country is 460 miles long and 360 miles wide; what size sheet will be needed to make a map on the scale of ⅛ in. to the mile, with a border of 2 in.?

ANSWERS.

1. 30,430.

2. 7½.

3. Four strips, each 12½ ft. long. = 50 ft. or 16⅔ yds. $.45 × 16⅔ = $7.50 cost. 12½ × 11⅓ = 141⅔ sq. ft. or 15 20/27 sq. yd. $.50 × 15 20/27 = $7.87 cost.

4. Average width of ditch 5 feet.

$$\frac{3 \times 5 \times 2640}{27} = 1466\tfrac{2}{3} \text{ cu. yd.}$$

$ .08 × 1466⅔ = $117.33⅓.

5. 16,000 ÷ 1,000,000 = .016 rate.
.016 × 8,000 = $128. A's tax.

6. 500 × .50 = $250 duty.
750 × .33⅓ = $250, importer's gain.
1,000 ÷ 500 = 2 i.e. cost to the retailer is 200% of the first cost.

7. $1.25 ÷ 1.20 = $1.04⅙, cost per pair.
$1.04⅙ × 12 = $12.50, cost per dozen.

8. ⅕ + ⅖ = ⅗, the part of the work that A and B can do together in one day. 1 ÷ ⅗ = 1⅔, the number of days it takes A and B working together to do the work.

9. $.10 ÷ .6 = $1.66⅔ or $166⅔ a share.

10. 460 ÷ 8 = 57½ in. + 4 in. border = 61½ in. long.
360 ÷ 8 = 45 in. + 4 in. border = 49 in. wide.
The sheet will be 5 ft. 1½ in. by 4 ft. 1 in.

SCHOOL LAW.

1. Describe the process of electing a Regent of the University. Give the term of office and one important duty of a Regent.

2. Give the county treasurer's principal duties relating to public schools.

3. What are the provisions of law in regard to the number of trustees and their term of office in a common school district?

4. Give the four *special* qualifications one of which a voter at a school meeting must possess.

5. Mention three different public school funds and give the origin of one of them.

6. Describe the method of awarding state scholarships in Cornell University. How many are awarded each year?

7. To what school official do the trustees make annual report? Give the essentials of this report.

8. By what officer are school district boundaries determined? Where are records of these boundaries preserved?

9. Under what condition is State library money apportioned to a school district? By whom must books be purchased with this money be approved?

10. What are the duties of the teacher in regard to the compulsory education law?

ANSWERS.

1. The Senate and Assembly vote separately for the election of a Regent. Then the two houses meet in joint session and, if the choice of both houses falls upon the same person, he is duly declared elected Regent. If the choice does not fall upon the same person, a *viva voce* vote is taken in joint session of the legislature, a majority of each house being present and a majority of the whole legislature being required for an election. The term of office is eleven years. It is the duty of a Regent to act with the other Regents as a board to establish such rules and regulations as are necessary to carry into effect the statutes of this State relating to education.

2. To receive from the State Treasurer the school moneys apportioned to his county and pay it over to the supervisors of the several towns in accordance with the apportionment made by the school commissioner or school commissioners of his county.

3. A sole trustee is elected for one year. A full term of a joint trustee is three years.

4. (*a*) Own or hire or be in possession under a contract of purchase, of real property in such school district, liable to taxation for school purposes. (*b*) The parent of a child or children of school age, some one or more of whom shall have attended the district school in said district for a period of at least eight weeks within one year preceding such school meeting. (*c*) Every such person not being a parent, who has permanently residing with him or her a child or children of school age who shall have attended the district school in said district for a

period of at least eight weeks within one year preceding such school meeting. (*d*) Own any personal property, assessed on the last preceding assessment roll of the town, exceeding $50 in value, exclusive of such as is exempt from taxation.

5. United States deposit fund, literature fund, common school fund.

The United States deposit fund came from surplus money in the National treasury, which was deposited in 1836 among the States and not recalled.

6. A competitive examination, under the direction of the State Education Department, is held at the county seat of each county of the State on the first Saturday of June, in each year, by the city superintendents and the school commissioners of the county. Each county is entitled to as many scholarships as it contains assembly districts, and candidates become entitled in the order of their excellence to the scholarships belonging to their respective counties.

In case a scholarship becomes vacated for any reason, then the candidate certified to be next entitled in the same county shall become entitled to it. If any scholarship belonging to any county shall not be claimed by any candidate resident in that county, the State Commissioner of Education may fill the same by appointing some candidate first entitled to a vacancy in some other county. 150 appointed annually.

7. School commissioner. The whole time school has been kept; financial report of district receipts and expenditures; the number and the attendance of the children; complyment or non-complyment with the health and decency acts.

8. School commissioner; town clerk's office.

9. On condition that the school district raise and use for the same purpose an equal amount from taxation or other local sources, and shall comply with the requirements of the State Commissioner of Education as to the care of such libraries and otherwise.

State Commissioner of Education.

10. The teacher shall keep an accurate record of the attendance of all children between eight and sixteen years of age. Such records shall be open to the attendance officers or other persons duly authorized by the school authorities, who may inspect or copy the same. The teacher shall fully answer all inquiries lawfully made by the school authorities and inspectors and report cases of truancy to the proper official.

HISTORY OF EDUCATION.

1. Compare education in Sparta with education in Athens.

2. Name three Roman educators and state the important principles advocated by one of them.

3. Name three of the Fathers of the early Church and write briefly on the educational work of one of them.

4. Show the immediate and ultimate influence of Mohammedanism on European education.

5. Show the educational principles and methods embodied in Rabelais's *Gargantua*. Why is this work of importance in education?

6. Mention three of the favorable features of the educational work of the Jesuits.

7. State some principles now commonly recognized in teaching that may be traced to Pestalozzi.

8. Name a prominent European educator (not mentioned in answer to any of the above questions), who emphasized the teaching of (*a*) ancient languages, (*b*) modern languages, (*c*) the mother tongue, (*d*) natural sciences.

9. Write on the educational influence of Herbart *or* of Froebel.

10. Write briefly on the history of common schools *or* of compulsory education in the State of New York.

ANSWERS.

1. Education in Sparta was almost entirely physical and trained for war and for the protection and preservation of the State. Education in Athens was both physical and intellectual and aimed toward the development of individual worth.

2. Seneca, Cicero, Quintilian. Quintilian advocated no corporal punishment; able teachers of spotless character; the use of amusements as a means of education; public schools rather than private schools; that rhetoric should be the climax of education.

3. Chrysostom, Tertullian, St. Augustine. St. Augustine based all teaching on authority rather than on research and he excluded all pagan literature from the schools. This introduced a narrow view into education which it took centuries to eradicate.

4. (*a*) The immediate influence was to lead the students of Western Europe to enter the Mohammedan schools, especially for the study of science, mathematics, and philosophy. (*b*) The ultimate influence was to force the scholars of Western Europe to defend Christianity on philosophic principles which led to educational principles based on reason rather than on authority, promoted scholasticism and contributed to the growth and development of the universities.

5. The principle is that the child should learn thru observation on the basis of experience. The method consists in bringing the child in contact with nature; in contact with things rather than with words about things. It is important because it marks the beginning of breaking away from the old scholastic method and points towards education by the inductive method and by processes based upon the senses.

6. The Jesuits established schools everywhere, and placed them in charge of trained teachers of ability; they developed a remarkable power and tact in instruction and school management; they stimulated authorship and advanced learning.

7. That education consists in the harmonious development of all the human powers; that all knowledge is obtained thru the senses by the self-activity of the child; that teachers should love their pupils.

8. (*a*) Roger Ascham, (*b*) Montaigne, (*c*) Comenius, (*d*) Rousseau.

9. Froebel's greatest contribution to the work of educational reform is the kindergarten in which stress is laid on the value of play as an educational influence. Froebel asserted that the aim of education is to enable the child to make nature his own and to enrich his own soul by contact with nature; and having that enrichment to endeavor to make that soul more ideal—more God-like.

10. See Draper's "Origin and Development of the Common School System of the State of New York."

BOOKS EVERY TEACHER SHOULD OWN

LITTLE TALKS ON SCHOOL MANAGEMENT

By Randall N. Saunders. A practical work, full of suggestion, information, and inspiration for teachers in primary schools.

This book, in fifteen chapters or divisions, covers the entire field of school management from "Before School" to "Home Lessons," and discusses in an intelligent, helpful, and spiritual manner all of the problems that teachers in both graded and ungraded schools meet and are forced to solve correctly to attain the highest professional success. It contains full description of novel and practical methods that have been employed to excellent advantage by the author; and, while it is of invaluable assistance to the young teacher, it is also full of valuable suggestions and inspiration for the teacher of experience. A chapter or division discusses the education of the future, "Education for Usefulness," which gives an outlook for the future of the country that is encouraging, and makes an appeal that every progressive and conscientious teacher should read and promptly respond to. In style, the work is clear, concise,—at times epigrammatic,—but not wholly devoid of ornament, and, while it is far too serious in intent for humor, it is not without an occasional flash that will be met by the teacher of experience with a smile of recognition. 12 mo, cloth, 50 cents.

PROF. JOHN F. WOODHULL'S PHYSICAL NATURE STUDY LIBRARY IS NOW COMPLETE.

Home Made Apparatus
With reference to Chemistry, Physics and Physiology.

Simple Experiments in Chemistry
Teaches the important principles of Physics.

Simple Experiments in Properties of Matter—Mechanics, Etc.

Simple Experiments in Magnetism, Electricity, Sound, Etc.
Each 12 mo, illustrated, cloth, 40 cents each.

MANAGEMENT AND METHODS

For Rural and Village Teachers

By Thomas E. Sanders. We are glad to announce that we have just secured the publishing rights of Management and Methods, by Thomas E. Sanders. This book came from press only a few months ago and has met with splendid sales. It is plain, practical, pointed, and pedagogically sound. The author speaks from a wide experience. He hits the point on every topic. He discusses the problems of school management and methods of teaching from the standpoint of the great mass of teachers—those teaching in the rural and village schools. It is in reality what one teacher declared it to be, *"the book that makes teaching easier for you."* For State or County Reading Circles, the teachers' institute or round table, or for private reading or study it will give satisfaction. 12 mo, cloth, 312 pages, $1.00.

We will be glad to send free on request to any teacher our new illustrated catalog of books for teachers and schools. It describes hundreds of valuable books.

A. S. BARNES & COMPANY, 11-15 E. 24th St., New York

7. State some principles now commonly recognized in teaching that may be traced to Pestalozzi.

8. Name a prominent European educator (not mentioned in answer to any of the above questions), who emphasized the teaching of (*a*) ancient languages, (*b*) modern languages, (*c*) the mother tongue, (*d*) natural sciences.

9. Write on the educational influence of Herbart *or* of Froebel.

10. Write briefly on the history of common schools *or* of compulsory education in the State of New York.

ANSWERS.

1. Education in Sparta was almost entirely physical and trained for war and for the protection and preservation of the State. Education in Athens was both physical and intellectual and aimed toward the development of individual worth.

2. Seneca, Cicero, Quintilian. Quintilian advocated no corporal punishment; able teachers of spotless character; the use of amusements as a means of education; public schools rather than private schools; that rhetoric should be the climax of education.

3. Chrysostom, Tertullian, St. Augustine. St. Augustine based all teaching on authority rather than on research and he excluded all pagan literature from the schools. This introduced a narrow view into education which it took centuries to eradicate.

4. (*a*) The immediate influence was to lead the students of Western Europe to enter the Mohammedan schools, especially for the study of science, mathematics, and philosophy. (*b*) The ultimate influence was to force the scholars of Western Europe to defend Christianity on philosophic principles which led to educational principles based on reason rather than on authority, promoted scholasticism and contributed to the growth and development of the universities.

5. The principle is that the child should learn thru observation on the basis of experience. The method consists in bringing the child in contact with nature; in contact with things rather than with words about things. It is important because it marks the beginning of breaking away from the old scholastic method and points towards education by the inductive method and by processes based upon the senses.

6. The Jesuits established schools everywhere, and placed them in charge of trained teachers of ability; they developed a remarkable power and tact in instruction and school management; they stimulated authorship and advanced learning.

7. That education consists in the harmonious development of all the human powers; that all knowledge is obtained thru the senses by the self-activity of the child; that teachers should love their pupils.

8. (*a*) Roger Ascham, (*b*) Montaigne, (*c*) Comenius, (*d*) Rousseau.

9. Froebel's greatest contribution to the work of educational reform is the kindergarten in which stress is laid on the value of play as an educational influence. Froebel asserted that the aim of education is to enable the child to make nature his own and to enrich his own soul by contact with nature; and having that enrichment to endeavor to make that soul more ideal—more God-like.

10. See Draper's "Origin and Development of the Common School System of the State of New York."

BOOKS EVERY TEACHER SHOULD OWN

LITTLE TALKS on SCHOOL MANAGEMENT

By Randall N. Saunders. A practical work, full of suggestion, information, and inspiration for teachers in primary schools.

This book, in fifteen chapters or divisions, covers the entire field of school management from "Before School" to "Home Lessons," and discusses in an intelligent, helpful, and spirited manner all of the problems that teachers in both graded and ungraded schools meet and are forced to solve correctly to attain the highest professional success. It contains full description of novel and practical methods that have been employed to excellent advantage by the author; and, while it is of invaluable assistance to the young teacher, it is also full of valuable suggestions and inspiration for the teacher of experience. A chapter or division discusses the education of the future, "Education for Usefulness," which gives an outlook for the future of the country that is encouraging, and makes an appeal that every progressive and conscientious teacher should read and promptly respond to. In style, the work is clear, concise,—at times epigrammatic,—but not wholly devoid of ornament, and, while it is far too serious in intent for humor, it is not without an occasional flash that will be met by the teacher of experience with a smile of recognition. 12 mo, cloth, 50 cents.

PROF. JOHN F. WOODHULL'S PHYSICAL NATURE STUDY LIBRARY IS NOW COMPLETE.

Home Made Apparatus
With reference to Chemistry, Physics and Physiology.

Simple Experiments in Chemistry
Teaches the important principles of Physics.

Simple Experiments in Properties of Matter—Mechanics, Etc.

Simple Experiments in Magnetism, Electricity, Sound, Etc.
Each 12 mo, illustrated, cloth, 65 cents each.

MANAGEMENT AND METHODS

For Rural and Village Teachers

By Thomas E. Sanders. We are glad to announce that we have just secured the publishing rights of Management and Methods, by Thomas E. Sanders. This book came from press only a few months ago and has met with splendid sales. It is plain, practical, pointed, and pedagogically sound. The author speaks from a wide experience. He hits the point on every topic. He discusses the problems of school management and methods of teaching from the standpoint of the great mass of teachers—those teaching in the rural and village schools. It is in reality what one teacher declared it to be, *"the book that makes teaching easier for you."* For State or County Reading Circles, the teachers' institute or round table, or for private reading or study it will give satisfaction. 12 mo, cloth, 312 pages, $1.00.

We will be glad to send free on request to any teacher our new illustrated catalog of books for teachers and schools. It describes hundreds of valuable books.

A. S. BARNES & COMPANY, 11-15 E. 24th St., New York

Valuable New Books

Composition in the Elementary School

By Joseph S. Taylor, Pd. D., District Superintendent of Schools in the City of New York.

This book presents the science and art of composition in the elementary school. It is an attempt to analyze composition as a mental process and as a form of art, in order, by such analysis, to relate the subject to other modes of expression, and to find the data necessary for the formulation of principles which govern the aim and method of teaching the art to children.

There are chapters on the "psychology of composition," the "aim of composition," "method in composition," "forms of composition," "the correction of compositions," etc., also a collection of devices for making composition interesting and effective which has been secured by the author from successful teachers. These aids are classified by grades and include suggestions for both oral and written work. 12mo, cloth, $1.00.

Art of Class Management and Discipline

By Dr. Taylor. Recently published. Shows what are the elements of effective control of a class and how to secure all the ends of class government. Cloth, 12 mo., $1.00.

The National Question Book

Revised and Enlarged

By Edward R. Shaw. This is the best question book for teachers and those preparing to teach, ever published.

It has just been revised and brought up-to-date in a new and enlarged edition. Comprehensive and practical, it reviews every subject ordinarily taught in the schools, from the elementary through the high school. Each is taken up in its simplest phases and carried to the highest point until the entire ground has been covered. It is concise. There are no catch questions. It is a book for serious study. For review, for examination, and for study of the subjects included in its scope, Shaw's *Question Book* offers the best help available. (1) *It is authoritative.* (2) *It contains about three thousand questions with answers on 77 different branches* of study required in examinations, as follows:

Arithmetic, Geography, Mathematical Geography, Physical Geography, American History, Grammar, Orthography, Orthoepy, Algebra, Physics, Geometry, Latin, Theory and Practice of Teaching, Physiology. Alcohol and its Effects, Bookkeeping, Civil Government, English Literature, General History, Zoology, Astronomy, Rhetoric, Composition, Reading, Botany, Chemistry, Geology.

(3) The answers do not directly follow the questions as in most books, but are in a separate chapter numbered to correspond, thus preventing servile copying. (4) As a reference book, *in* review studies, or *for* asking questions of the class, it has no superior. (5) It is beautifully printed on heavy paper from large, clear type and elegantly and durably bound to last a lifetime. 12 mo., 500 pages, handsome, durable, cloth binding, $1.75 postpaid.

A. S. BARNES & CO., 11-15 East 24th Street, New York

Educational Foundations

OCTOBER
1906

VOL. XVIII
NO. 2

DEPARTMENT OF
EDUCATION.
RECEIVED

SEP 25 1906

LELAND STANFORD
JUNIOR UNIVERSITY

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY

ELIZABETH, N. J.
Entered as Second Class Matter at
the Post Office at Elizabeth, N. J.
NEW YORK CITY

Copyright, 1906, by A. S. Barnes & Company, New York

Contents for October, 1906

Editorial - - - - - - - 81

The Course of Study. C. H. Gilbert - 84

The Autobiography of a Teacher. II. C. Hanford Henderson - - - - - - 94

English Composition in the Lower Grades. II. George S. Messersmith - - - - - 108

The Doctrine of Interest. Joseph S. Taylor 118

The School as an Agency for the Moral Training of Children. George I. Aldrich - - 133

PEDAGOGIC DISCUSSION

Methods of Teaching Arithmetic. Simon Newcomb - - - - - - - - 144

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to June inclusive, at [illegible] a year, and is sent to its subscribers regularly until ordered to be discontinued and arrears paid for in full. We also publish **The School Journal** weekly, [illegible] a year; **Teachers Magazine**, (including "The Teachers' Institute," "Primary School," "The Intelligence," and "Primary School Era") monthly, [illegible] a year; and **Our Times** (formerly "Our Times" and [illegible]) weekly, [illegible] a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly 400 Standard Teachers' Books and Aids, and keep in stock all the best of such books of all publishers; also all [illegible] books published, Blackboard Stencils, Teachers' Aids, etc. These are described in large valuable and attractive catalogues: Teachers' Catalog [illegible] our publications; School Entertainment Catalog [illegible] all the really valuable books [illegible] and [illegible] Catalog [illegible] all books of all publishers relating to teachers [illegible]. All remittances for [illegible] orders for books, etc., should be sent to A. S. BARNES & COMPANY, Educational Dept., [illegible] East [illegible] St., New York, or [illegible], N. J.

Copyright, 1906, by A. S. Barnes & Company

(Entered at the [illegible], N. J., Post Office as Second-class Matter)

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII OCTOBER, 1906 No. 2

Development of spontaneity and initiative in the children at school is something to which we in this country have not yet attained, tho the need of it is more or less recognized by the leaders in education. The irony is that often the very men who devise a new plan for the liberation of the children transfer them in the working out of the idea merely into new ruts. The "culture-epoch" theory is a case in point. It was intended to set aside the treadmill of traditional procedure. In its elaboration it has become a new machine, the absurdity of whose working is unmistakable when seen carried out as logically as it is in a publication on industries in education issued from the University of Chicago Press.

Whether the children follow the mechanized succession of "epochs" or the ordinary routine, the principle is the same; machinery is deadening. Besides, the "culture-epoch" theory misses one important point. The occupations of primitive man originated under the influence of his natural environment; the children of to-day must be denaturalized first, before they can fit their minds into their ante-diluvian predecessor's grooves. The correspondences between the development of mankind and that of the individual man are no doubt very striking at times, and theoretically always interesting. They suggest rather what not to do, than what to do, to those who would profit by the experiences of the past. This is a point well worth debating at teachers' meetings this month.

There is not so much need for devices in making children do certain things in a certain way as there is for supplying opportunities for creative self-expression. A little anxiety for systematic propriety would do no harm. Children's minds are not yet the logical machines that the minds of the builders of pedagogic theories are—thank Heaven!

The Course of Study

Arithmetic

I. Fundamental principles.

(1). Numeration lies at the foundation of thinking. The absolute basis of thought is comparison of ideas. Such comparison is impossible without at least a rudimentary conception of number. I cannot think an absolutely solitary unit. My own personality makes with the idea in contemplation at least two, and almost invariably not less than one other object enters into the comparison. If all objects, ourselves included, were spherical we could have no conception of a sphere. It is only by contrasting that particular form with other forms that we can know it. So we must know more than one, as more than one, in order to think at all.

Probably the maximum number that can be comprehended from the direct contemplation of objects does not exceed five. Three seems to be the limit among most savage peoples, and it is a question whether a bright dog cannot go so far.

But with a system there is no limit to computation, not even the hypothetical limit to the number of existing countable objects. That is, both the infinitely large and the infinitely small become the commonplaces of mathematics.

As the comparison of objects necessary for thinking gives the first notion of number, this notion grows unconsciously with the extension of the field of thought. But because of the remarkable limitation of the power of the mind to grasp at once several objects presented thru the senses, unless this vague number conception be aided and enlarged by means of a system of numeration, the power of thought itself is limited and we have the reasoning power of the infant continued thru life, as in the savage.

(2). If follows that the first step in the development of a systematic knowledge of number must necessarily be counting; that is the assembling under a definite numerical system and nomenclature of several objects on no other ground than that of some qualitative likeness. Exact measurement, the recognition of the quantitative likeness of the objects compared, comes later.

Hence if we are to follow the psychological law of first finding the child's position, and then leading him by easy steps to a higher, the first step in instruction in number is teaching pupils to count things; as, for example, the children present. It makes no difference how widely they differ in height or weight. That this is the natural order is indicated also by the counting passion, which manifests itself in all children at a certain stage.

The notion of numerical progression thru a considerable field, having been established by counting, the next step is to exact calculation or measuring; *how many* yields to *how much*, and ratio takes the place of counting.

Frequently, perhaps in most cases, this stage will have been passed before the children come to school. This is especially true of those who have enjoyed the advantage of good kindergarten training. In the next article dealing with Method, I shall take it for granted that the counting stage has been passed by the children before the formal work of teaching Arithmetic is undertaken in school, and that they are ready for the second step.

(3). Number is a mental product, not a physical condition. Things, but not numbers, exist outside the mind. Numerical facts are not the facts of physics. To quote Professor William James (Psychology, Vol. II, p. 655), "The same real things are countable in numberless ways, and pass from one numerical form, not only to its equivalent (as Mill implies) but to its other, as the sport of physical accidents or of our mode of attending, may decide. How could our notion that one and one are eternally and necessarily two ever maintain itself in a world where every time we add one drop of water to another we get not two but one again? in a world where every time we add a drop to a crumb of quicklime we get a dozen or more? Had it no better warrant than such experiences, at most we could then say that one and one are usually two. Our arithmetical propositions would never have the confident tone which they now possess. That confident tone is due to the fact that they deal with abstract and ideal numbers exclusively."

Counting and reckoning consist in the grouping of objects by the mind to any quantitative extent and in any numerical arrangement in such ways as to satisfy some deed—to make possible the definite consideration of objects for higher uses.

(4). But is is of comparitively little use to me to be able to think numerical relations even with perfect clearness, unless I can communicate my thoughts to others and establish with them relations ou a numerical basis.

So a *system* of numeration establishes a common ground, a clearing house, of number concepts, so that the number element may enter definitely and effectively into human relations.

Upon number systems (Arithmetic in the larger sense) then, depend not only all higher forms and systems of knowledge, all extended thought, but also very many social relations, including all forms of exchange, whether of labor or commodities, whereby our wants are supplied.

The importance of these fundamental principles, simple as they are, will appear when we come to discuss methods of instruction.

II. Why teach Arithmetic in school?

The ends of teaching Arithmetic are two: one utilitarian, the other educational. The former is the end that appeals to most people and is the one usually put forward as the basis for a demand for more time and attention to this one of the three R's. Doubtless more criticism is passed upon the modern school because of the alleged failures of young people to meet the arithmetical requirements of business than for any other reason, not excepting bad spelling.

That there is some ground for this fault-finding is doubtless true. However, the value of full courses in Arithmetic to the business man is greatly overestimated, and in many cases perverted; that is, portions of the Arithmetic that are supposed to have great utilitarian value have little or none, tho some of them may have great educational value.

For instance, Proportion, the old "Rule of Three," has no place whatever in business, but it represents perfect logic and logic of the only kind comprehensible to children.

If Arithmetic were to be limited solely to its "bread and butter" values, a very small book indeed would be required, and while much drill and much practice would be devoted to this irreducible minimum, still the time given to the subject would be greatly lessened.

But Arithmetic has a further use—the educational—and the question as to quantity and method for this use is not easily disposed of. Most of those portions of the ordinary book text retained for their supposed mind-training qualities, are but stolen thunder from algebra and geometry.

(1). What knowledge of Arithmetic does the average business man need, and how can the school best supply it?

He should be able to add, subtract, multiply, and divide integers, simple common fractions, and decimals extended to include the principles of percentage and simple interest, with a very few tables of denominate numbers. Ordinary business requires no more than this. Special lines of business have special requirements, as that of the broker or the banker or the surveyor. But to meet such special demands is not the function of the elementary school. Indeed, such particular equipment can best and most economically be obtained in the business itself; and most business men prefer it so.

Should we then omit all else from our Arithmetic, considered on a purely utilitarian basis? Let us see what would be dropped.

I have before me two of the very latest and most radical grammar school arithmetics. One of them contains 378 pages of material for pupils' use. Of these 205 are given to subjects not included in our list of utilitarian necessities, leaving a book of essentials containing but 173 pages. The additional pages are taken up with matter largely modern, but educational rather than utilitarian in purpose.

This matter is distributed as follows:

Introductory problems—covering almost the entire field of calculations	28	pages
Tests of divisibility	3	"
Cancellation	4	"
Algebra	31	"
Geometry	37	"
Bookkeeping	15	"
Measurements	21	"
Proportion	5	"
Complex Fractions	3	"
"Applications of Percentage"	11	"
"Problems of Interest"	3	"
Partial Payments	2	"
Transportation	6	"
Astronomy	7	"
Longitude and Time	5	"
Mensuration	10	"
Squares and Square Roots	5	"
Cubes and Cube Roots	3	"
Metric System	6	"

In addition to this are given these tables—English Money, Money Units of different nations, Troy Weight, Apothecary's Weight, Surveyor's Measures.

The other book contains 487 pages of matter for the pupils, including besides the essentials:

Introductory Problems	14	pages.
Form Study and Measurements (Geometry)	83	"
Powers and Roots	10	"
Ratio and Average	24	"
Approximations	3	"
"Applications"	38	"
Divisibility	1	"
Algebra	28	"
Applications of Interest	13	"
Foreign Money	6	"
Metric System	9	"
Total	109	pages.

This book also gives tables for Troy Weight, Apothecary's Weight, and Surveyor's Measure.

Both books, in addition to the many pages devoted to enriching the subject beyond the utilitarian essentials, furnish a large amount of valuable information on many subjects by means of problems illustrating the different fundamental principles.

It is evident that the authors added this large amount of matter because of its supposed educational value. We will discuss it from that point of view later.

The two books analyzed are exceptional in that they omit much traditional matter found in older arithmetics, originally placed in the books from which our older text-books have copied it, for the same reasons that the newer books have given other more modern foreign matter.

Following are the most common of these traditional subjects, found in nearly all arithmetics, excepting the most recent:

Equation of Payments, Alligation, Compound Proportion, Partnership Series, Annual Interest, Duodecimals, Exchange. Besides these are the following which are also still retained by the most modern books, "Applications" of Percentage and Interest, as Insurance, Profit and Loss (fictitious largely), True Discount, Commission, and Brokerage (obsolete in method), Stocks, Partial Payments, Addition, Subtraction, Multiplication, and Division of Compound Numbers, and certain obsolete and special tables of Denominate Numbers.

Truly this is an array that in these days of curricula crowded with cultural studies, needs justification.

It is not necessary to discuss the utilitarian value of the fundamental processes, or of those simpler branches of arithmetical knowledge that I have mentioned as necessary for the business man. Some may, however, question the possibility of omitting the subjects mentioned as unnecessary for the business man.

Let us see. Obsolete methods of conducting business surely are not practically useful. This will leave out the greater part of the "applications" as given in the books, as Partial Payments, Commission, Brokerage, Profit and Loss, Discount, Exchange, and operations in compound numbers with the obsolete or unusual tables and terms as, Troy Weight and gill, stone, square, the various barrels and others, and also Equation of Payments, Alligation, Duodecimals, Proportion, and Partnership.

Equation of payments has not even a modern equivalent. The same is true of duodecimals, except for purely theoretical discussion, or in fields uncommon. No one outside of schools adds 6 lbs., 5 ozs. of butter to 2 cwt., 17 lbs., and 3 oz. No one multiplies 2 mi., 3 rods, 2 rds., 11 yds., 2 ft., 9 in. by 7½. In the few cases requiring reckoning upon compound numbers, decimals are used.

Not even the surveyor extracts square root nor the lumberman cube root. I question whether any one who may read this article has ever had occasion to use either except in school They are blessings for the learning mind alone, too precious for the coarser uses of the business man.

Hence on utilitarian grounds these subjects all must go.

The teaching of the terms and processes used in only single specific lines of business cannot but be regarded as wasteful for the average child. This eliminates such subjects as mensuration, surveying, transportation, and astronomical reckoning, including longitude and time.

How about algebra and geometry? And should such subjects as stocks, profit and loss and brokerage, be retained with modern methods substituted for the obsolete?

As to algebra and geometry, it is enough to say that the average business man is wholly ignorant of them, and that they could not be applied to the solution of the simple and manifest problems that constitute almost the whole mathematical demand of ordinary business. Their natural value is another story.

As to the practical importance of teaching modern methods of certain lines of business in substitution for the obsolete methods of the older text-books, this may be said: much may profitably be taught incidentally, as to business principles and methods, thru problems given to illustrate the fundamental principles. This is not only unobjectionable but very desirable. It is one of the ways of imparting a sense of reality to the school work for the child. Indeed, the choice of problems, vital in character, is one of the admirable characteristics of the newer books. To introduce into the arithmetic on utilitarian grounds a subject that is chiefly cultural, is objectionable, unless it be a subject of very general usefulness.

Of the "applications," insurance is possibly of sufficient general interest to justify a brief treatment—all it needs.

The number of people engaged in business requiring the payment of commissions is so small comparatively that any considerable amount of space or even separate treatment for this subject is not justified on a bread-and-butter basis, unless the teacher finds it furnishing exceptionally good material for practice in percentage.

Exchange is too vague and too limited in use to deserve a place. Brokerage is merely simple percentage. Of stocks it may be well to teach just enough to enable a pupil to understand quotations. Partial payments require altogether too much time for their very limited use. Discount has no place. Bank discount is nothing but simple interest reckoned in advance.

As compound interest is reckoned in savings banks, the banks of the many and the ignorant, it is doubtelss well to teach enough of it to enable depositors to figure their interest. All methods of computing simple interest but one, the one employed in banks, should be omitted, as wasteful of time and confusing.

The use of the metric system among us is still, and is likely to be for long years to come, limited to technical treatises on scientific subjects. The prospect offers no justification for teaching it in elementary schools on utilitarian grounds.

Hence we are forced to the doctrine that on utilitarian grounds alone the only portions of arithmetic that should be retained are the fundamental "principles;" simple fractions with denominators that can be reduced to a common denominator by factoring at sight, decimals, percentage, and interest, including just enough of the "applications" to furnish the necessary drill and practice; one method of computing interest; taxes and duties; enough of compound interest to enable the savings bank depositor to understand his bank book. To these should be added the more important tables of denominate numbers.

This would make a small book and save time, while it would undoubtedly encourage more persistent drill upon the subjects taught and doubtless secure greater accuracy.

(2). Let us consider now the cultural value of Arithmetic and determine if possible, how many and what subjects should be retained in it on this ground.

How may Arithmetic serve the general education—the culture of the child?

In two ways: one by "training his mind," securing accurate and reliable processes of mental activity; in brief, teaching him to think; the other by enriching his mental content, that is, giving him knowledge not merely for immediate utility but for broadening his outlook, extending his sympathies and supplying apperceiving centers.

We must bear in mind, that in order to justify the attempts to secure these ends thru the study of arithmetic it is necessary to show that this subject furnishes the best and most economical means for securing them. Otherwise they should be cut down or out and more efficient cultural agencies substituted.

Arithmetic is the logic of the child. It is almost the only means available for teaching him the certainties of logical processes, the reliability of the syllogism. It is the only field of absolute truth where determinable effect always follows determined cause. Dr. David Eugene Smith in "The Teaching of Elementary Mathematics" p. 25, says:

"The fact that the child finds a positive truth an immutable law at the time in his development when he is naturally filled with doubt, with the desire to investigate, and with the feeling that he must put away childish things, has a value difficult properly to appreciate. He is not sure that every flower has petals, that every animal needs oxygen, that "most unkindest" is bad grammar, or that Columbus was the real discoverer of America, but he is sure, and no argument can shake his faith, that whatever may happen to the universe in which he lives $(ab)^2$ will always equal $a^2+2ab+b^2$."

But this particular mental power is best obtained thru dealing with numbers as abstract rather than thru the solution of difficult business problems. It is the exact result of the action of known causes that gives the training in deductive or mathematical reasoning. There may be, however, some mental gain from the solution of even individual problems. Upon this point I again quote Dr. Smith:

"So Arithmetic may, even by obsolete problems, train the mind of the child logically to attack the every-day problems of life. If he has been taught to think in solving his school problems, he will think in solving the broader ones which he must hereafter meet. The same forms of logic, the same attention to detail, the same patience, and the same care in checking results exercised in solving a problem in greatest common divisor, may show itself years later in commerce, in banking, or in one of the learned professions. Hence, Arithmetic, when taught with this in mind, gives to the pupil not knowledge of facts alone, but that which transcends such knowledge, namely, power.

"It must not, however, be thought from its name that this culture phase of the subject is of value only as a luxury, like the ability to dabble in music or painting. Just because it is the child of the man in poor or modest circumstances who must make his own way in the world, it is for the common people that this culture phase is most valuable."

Still it seems to me evident that the solution of complicated problems tends to divert the attention from the deductive processes to the practical aspects of the questions, the assembling and assorting of the causal facts.

Unquestionably the most valuable part of arithmetic for the cultivation of reasoning power is (if I may be allowed), not Arithmetic at all, but algebra.

The tendency of modern books to introduce early algebraic terms and methods, the unknown quantity and the equation, cannot be too highly commended from the cultural view-point. Because the former deals with specific instances, the latter with generalizations. Despite all the general statements appearing in the form of rules, an arithmetical statement of fact stands for itself alone; $2+3=5$ remains that and nothing more, while

$a+b=c$ stands for an infinite number of possible terms, for all of which it is equally true.

Dr. Oliver Wendell Holmes, in the Autocrat, tells us:

"I was just going to say, when I was interrupted, that one of the many ways of classifying minds is under the heads of arithmetical and algebraical intellects. All economical and practical wisdom is an extension or variation of the following arithmetical formula: $2+2=4$. Every philosophical proposition has the more general character of the expression $a+b=c$. We are mere operatives, empirics, and egotists, until we learn to think in letters instead of figures."

Indeed, some of the subjects rejected as not of "practical" value belong properly in algebra. Such subjects as proportion and series, awkward in arithmetic because of lack of suitable terms, are simple in algebra. Indeed, if these and other such subjects are to be retained in arithmetic for their cultural value it is quite important that the algebraic method of training them be used in order that they may be simply the desired training in logic.

Truly the argument in favor of the retention of subjects that cultivate the power to think is strong. This is the highest power of the intellect and it is none too common, while no subject can be introduced into the elementary curriculum so well calculated to train it as the "back part" of the arithmetic.

In the higher grammar grades a definite course in Elementary Algebra is of great value, especially to the many students whose schooling ends with the grammar school.

The study of the elements of Geometry, usually introduced as form "study" and mensuration may be classed with that of algebra. Its chief value rests upon the importance of a knowledge of form and dimension to a comprehension of the physical universe.

Constructive geometry and mensuration, as usually found in the arithmetics, appeal not so much to the reason as to the imagination. They tend also to substitute an exact knowledge of the environing world for a vague and comparatively useless knowledge; while deductive geometry, even as introduced in arithmetic in the application of formulae and other generalizations to the solution of problems in mensuration, shows a plain path to abstract reasoning. Problems in geometry, moreover, can be offered that will be "practical" without detracting from their value in training to think.

So much for the "unpractical" subjects that cultivate the reasoning power. The test question, could the same result be secured more effectively and economically by any other means, must be answered in the negative. These are the subjects, *par excellence*, for teaching children to think and on that ground their presence in our Arithmetics is justified.

* * * * * * *

Rèsume—A conception of Number is fundamental to even the most elementary thinking. A *System* of numbers is essential to all the higher realms of thought, and also to effective communication among thinking beings.

Arithmetic has both a utilitarian and a cultural value.

For the former more than half of the ordinary Arithmetic is worthless.

The essential subjects to this end are the fundamental processes.

For the latter the subject as a whole is very valuable, especially in cultivating the power to reason.

The most important subjects for this end are the fundamental processses and the methods of algebra and geometry.

Subjects should not be introduced to children thru Arithmetic for their cultural effects, unless Arithmetic is the best avenue for securing those effects. Most of the subjects whose avowed aim is to acquaint the child with the sciences or with business usage should be omitted as foreign to the subject. But problems throwing light upon those subjects may profitably be used for illustrations and practice under the essential subjects, and thus incidentally supply cultural elements.

The question of problems will be more fully discussed in the next article, under the general subject of Method.

New York. C. B. GILBERT.

The Autobiography of a Teacher. II

Study and Vacation

IN any retrospect, however honest the intention, it is not the whole that comes to mind, but only the parts and the parts themselves are determined, not so much by the events and their relative importance, as by the temperament of the reviewer. Being myself an optimist both by birth and subsequent experience, I realize that in this attempt to recall college days I naturally forget the shadows—the monotony and pettiness and fatigue, and remember only the high lights. Making all proper allowances, however, it still remains true that these four years were years of genuine delight. My love for the intelletual life came only second to my love for my mother, and in these golden days I was gaining the one and had the other. There were fewer distractions then than now, and in my own case fewest of all, for the family was still feeling the pressure of the financial difficulties which had befallen my father, and I hesitated to make demands upon my mother's modest income. Had I been a more capable and enterprising lad, I should doubtless have earned something for myself, but I do not think that it ever occurred to me. For one thing, there were fewer opportunities for making money by tutoring and other gentlemanly occupations, and such occupations as may have been open were probably against our social traditions.

I often regretted the lightness of my purse. Undoubtedly it did keep me out of some things that would have been of large advantage, for I went in for the intellectual life with a single-hearted devotion that might not otherwise have been possible. I doubt whether any modern collegiate dissipation—athletics, automobiling, cycling, photography, theatricals, yachting, even the best of such society as is commonly open to undergraduates, can yield the absolute thrill that comes to a lad athirst for knowledge when he realizes in all honesty that he is actually getting it. It is so devouring a passion that it seems to me not wholly impious to compare it to the emotion of a lover. It is a high pleasure even to recall the experience, the heightened pulse, the burning cheek, the kindling eye, all the physical heat that went with this ecstasy of enlightenment. I loved the fruits of study, even the operation itself, and for the simple reason, I think, that it had never been made flat, stale, and unprofitable by being prematurely forced upon me.

In looking back, it amuses me to recall the exciting causes of all this fervor, for in so many cases they now seem a trifle inadequate. Some of the occupations were certainly prosaic enough—drawing metallurgical machinery, assaying silver ores, making tedious analyses in the chemical laboratory, developing elaborate crystal forms in mineralogy, studying the dry facts of economics and logic, and doing a lot of other things that could not in themselves be called amusing. What saved these occupations from being a drudgery was, I think, the fact that with all of them I mixed the leaven of imagination. There are few tasks which will not yield to such alchemy and get transmuted into pleasures. One would not wish to live in an unreal and impossible world, however delightful the sensations it aroused. The enemies of imagination doubtless have this danger in mind when they count the imagination as little better than intellectual hashish and will have none of it. But there is a much broader and more helpful way of looking at the faculty than this, a way which properly makes of the imagination a most precious, even a divine gift. Benjamin Franklin in reviewing his own life in that incomparable autobiography which I might almost say is now the despair of every student of English, calmly and dispassionately recalls his various performances—he was eminent in nearly a dozen lines—only to add that of all his accomplishments, the ability to write good, clear English had been quite the most useful. Doubtless I should say the same thing, if like my distinguished fellow-townsmen, I possessed this same ability. As it is, I can truthfully say that of the several natural gifts bestowed so sparingly upon me at birth

by the events and their relative importance,
mperament of the reviewer. Being myself an
y birth and subsequent experience, I realize that
t to recall college days I naturally forget the sha
notony and pettiness and fatigue, and remember o
ights. Making all proper allowances, however,
is true that these four years were years of genuine
ve for the intelletual life came only second to my l
ther, and in these golden days I was gaining the o
e other. There were fewer distractions then tha
my own case fewest of all, for the family was still
essure of the financial difficulties which had befall
, and I hesitated to make demands upon my m
t income. Had I been a more capable and enter
should doubtless have earned something for myself,
think that it ever occurred to me. For one thing,
fewer opportunities for making money by tutorin
gentlemanly occupations, and such occupations as
een open were probably against our social tradition
ten regretted the lightness of my purse. Undoubte
ep me out of some things that would have been of
tage, for I went in for the intellectual life with a s
d devotion that might not otherwise have been po
t whether any modern collegiate dissipation—ath

it. It is so devouring a passion that it seems to me not wholly impious to compare it to the emotion of a lover. It is a high pleasure even to recall the experience, the heightened pulse, the burning cheek, the kindling eye, all the physical heat that went with this ecstasy of enlightenment. I loved the fruits of study, even the operation itself, and for the simple reason, I think, that it had never been made flat, stale, and unprofitable by being prematurely forced upon me.

In looking back, it amuses me to recall the exciting causes of all this fervor, for in so many cases they now seem a trifle inadequate. Some of the occupations were certainly prosaic enough—drawing metallurgical machinery, assaying silver ores, making tedious analyses in the chemical laboratory, developing elaborate crystal forms in mineralogy, studying the dry facts of economics and logic, and doing a lot of other things that could not in themselves be called amusing. What saved these occupations from being a drudgery was, I think, the fact that with all of them I mixed the leaven of imagination. There are few tasks which will not yield to such alchemy and get transmuted into pleasures. One would not wish to live in an unreal and impossible world, however delightful the sensations it aroused. The enemies of imagination doubtless have this danger in mind when they count the imagination as little better than intellectual hashish and will have none of it. But there is a much broader and more helpful way of looking at the faculty than this, a way which properly makes of the imagination a most precious, even a divine gift. Benjamin Franklin in reviewing his own life in that incomparable autobiography which I might almost say is now the despair of every student of English, calmly and dispassionately recalls his various performances—he was eminent in nearly a dozen lines—only to add that of all his accomplishments, the ability to write good, clear English had been quite the most useful. Doubtless I should say the same thing, if like my distinguished fellow-townsmen, I possessed this same ability. As it is, I can truthfully say that of the several natural gifts bestowed so sparingly upon me at birth by the traditional fairy godmothers, I have valued most persistently their gift of imagination, and because of it have almost forgiven their many and serious omissions. It is a great boon to feel the splendor of life and to picture even a small measure of its superb possibilities.

The unimaginative are prone to pair off fact against imagination, and to count the two as antithetical. But in reality the seeker after facts needs no food quite so imperatively as just this same imagination. This is particularly true in science. It is common to say that we have only so much science as we have arithmetic; and so far as this means that in its complete statement, science must be quantitative, it is undeniably true. But it is equally true to say that we have only so much science as we have imagination, for the man who enlarges the boundaries of knowledge must be able to see things that have never been seen before, to hear things that have never been heard before, to touch things that have never been handled before—in a word he must be able to marshal possible facts from the abyss of the hitherto unknown. Valuable work has been done by mere plodders, and apparently will be done until the end of time, for there seems not to be enough imagination to go all around, but their multitudinous facts are only humanly precious as they become the raw material out of which the more imaginative construct a coherent, scientific universe.

I have even read that lack of imagination is the potent cause of human immorality, and I am prepared to believe it. An inability to put himself in another's place makes a man cruel and selfish and unjust. My own failures in morality seem to to me have been mostly failures in imagination, failures to see below the surface, to see things in their proper relations and values. Nor can I dismiss the comprehensive reflection that given our three dimensional world as we have it to-day—earth and air, fire and water, apparently the same world to each participator,—and the worth and beauty of the drama we construct depend upon the ideas which we bring to the adventure, much more than upon the seemingly stubborn themselves. I am conscious that in my own case the magic which changed the dull college work-rooms into invisible gradens of delight was the rich imaginative life that paralleled their own more prosaic realities.

I should not claim, for a moment, that this imaginative life was always profitable. On the contrary I am quite sure that it was not. I invented fountains that would not work; a steel process so little practical that my good professor of metallurgy begged me to get it out of my head at once lest it bring me into later trouble; an ice-cream freezer that required neither ice nor cream, but gave a product too costly for ordinary consumption, and many other absurdities that it might be humiliating to recall. But this only means that like everything else, the imagination needs discipline and training.

In the more human studies of the course I found this lively imagination a very practical help. Coupled as it was with a distinctly visual type of memory, I turned everything into a gorgeous panorama, and sat like an interested spectator at the play. We had little time, in so crowded a scientific course, for history and other narrative studies, but such work as we had afforded me very brilliant pageants. I did not so much hear or read as I actually saw. I much preferred no illustrations, unless they were actual photographs of buildings and persons. If they had to be imaginative, I preferred to do the imagining myself. I even took delight in the less juicy subjects of the course, such as economics and logic (less juicy as then given), for they all offered a certain free play for the imagination, which gave as keen pleasure as a more muscular gymnastic does to persons somewhat differently constituted. I was quite dull at language, but the French always gave me more pleasure than the German, for the French presented a series of brilliant pictures, while the German only offered an amorphous collection of ideas. This preference still remains, and I have come to believe that for persons of my own type of mind, a knowledge of French and some familiarity with the literature are a distinct help towards clear expressions in English, while the German may even have a contrary effect. As French is so much easier than German, I should be sorry to have this argument used as an excuse for laziness. My little generalization would doubtless not hold for persons of a different mental make-up.

It is hardly necessary to add that this visual habit of mind was of great help in mathematics. It naturally made geometry much easier than algebra and other less graphic forms, and solid geometry the easiest of all, for the geometric solids hung before me in mid-air; generalizing themselves from moving lines or surfaces, intersecting at any required angle, or transforming themselves quite at my pleasure.

I have since learned that this panoramic habit of mind, and the visual type of memory which goes along with it, are extremely common, and I have also learned that they have marked disadvantages as well as marked conveniences. One of the disadvantages is that certain authors are closed books to me. I cannot read them. For some reason—probably a distinctly different habit of thought—their sentences do not call up the distinct images, and so fail to be intelligible. I can dig out the meaning so slowly, and the resulting impression is so evanescent, that I have had to conclude regretfully that it does not pay. As Louis Lambert would say, they do not belong to my heaven. Sir Leslie Stephens is such a treasure-house with closed doors. I have read his "Science of Ethics" twice, but it would puzzle me to give the barest account of it. I have also met persons who stand spiritually and intellectually on the opposite side of just such impassable gulfs. I realize, of course, that this failure to communicate may come from other causes—from a different outlook on life, from alien motives, from defective literary style, but there still remains a goodly array of cases where I am forced to believe that an altogether unlike habit of mind leads to a form of expression which fails to touch or enlighten a pronounced visualist. It would be humiliating to admit that I do not know what under the sun these people are talking about, were I not partially spared by the reflection that I am probably equally unintelligible to them.

Some apology would surely be demanded for this wide digression if it did not lead very directly and certainly to the matter in hand—to education. I am not sure that I use the word imagination quite as more exact psychologists employ it, but using the term to cover this play of thought about all experienced realities; this re-arranging of them into new and untried combinations; this intellectual curiosity which is forever peering into the unknown without removing its feet from the solidly known, and it seems to me that a scheme of education which kills the imagination is distinctly criminal; that one which disregards it, is curiously unwise, and that one which strengthens and makes use of it is alone defensible and rational. My own reverence for the imagination is so great, for this restless intellectual curiosity which is at once the most idle and the most industrious of all human faculties, that to its outspoken cultivation in children I would willingly sacrifice any number of premature and, as yet, useless facts. Facts lie all about us. They can be picked up any day. The important thing is the tool to apprehend and utilize them.

It would be highly unfortunate to have children live in an essentially unreal and impossible world, just as it would be to have men and women substitute imaginary exploits for genuine performance. We all grant that. But my point is that the performance of real value must needs be perceived and rehearsed in that more intangible world of the spirit before it can flower into action and become the chronicled event. And this necessity is not done away with by the fact that there is such a thing as an unwholesome imagination—an imagination which rearranges the wholesome elements of life into new and morbid combinations, or out of unreal material builds a fantastic and sickly world. It is easy here as elsewhere to draw the line between the wholesome and the unwholesome.

One reason why my own imagination was so vivid—and, I am bound to believe, so helpful—was doubtless because I was born so; but then most children are so born. It was only that in my own case the imagination was happily never killed.

On the contrary, it was distinctly cultivated by my somewhat unusual mode of life, by the fact that I went to school so little, that I read and traveled so much, and above all, perhaps, by the rich emotional life which centered in my beautiful mother. I do not know whether love begets imagination, or imagination begets love, but an any rate there seems to me an essential parallelism between them. Given both, and life is wholly worth while. Given neither, and life is an arid desert. Believing this, it seems to me of far greater importance that our children should have this full life of the spirit, this divine happiness of love and exuberant fancy than any amount of utilitarian facts and businesslike accomplishments. We are here very near to the source of power in every human life. It is in the round tower of the heart that battles are won and lost. If the heart be strong, if the power be there, it is an easy matter to create the necessary machinery for transforming power into useful work. But in the absence of power no mechanical equipment, however elaborate, is at all worth while.

So it seems to me overwhelmingly true that the tasks of childhood ought to appeal to the heart of childhood, ought to appear to it both desirable and possible, and that no standard is rational which leaves in its wake despair and weariness, in place of hope and inspiration. In reality there are no such things as isolated, impersonal tasks. The world is much too personal and subjective for that. Tasks are not good or bad in themselves. They are good or bad solely with reference to persons. I wish that we could feel this all along the line. I would bring into question, and then into social condemnation, many of the so-called exploits of our too-impersonal civilization. The truly significant facts in life are largely those which we create, not those which we find ready-made. In the sensitive child-life, these human subjective facts are more vital and vastly more fertile than the whole world of outer objective information. I have come to believe that the proper object of the teacher's care is the child's spirit, the child's attitude toward the outer world; and that the proper work of child education is to vitalize and energize the spirit, to make it passionately hungry for knowledge and the larger life, and only quite incidentally to supply the knowledge itself. Education is essentially an inner process, a change of heart, a revelation.

Working in this belief, it now seems to me that the instruction commonly given to children is largely a mistake, a premature feast forced upon them before appetite, and the digestion which waits on appetite, have at all been aroused. The first fifteen years of life can be better spent if they are frankly given over to three things—to the cultivation of the affections, to the cultivation of the imagination, and finally to the cultivation of the body as a serviceable tool for the carrying out of the purposes of the spirit. None of these are abstract tasks. In proportion they are successful, they are concrete.

The first thing that children need is to be loved, and with a warm, human love that they can see and feel. The essence of such a love is comradeship. It has nothing in common with that sentimentality which pets and spoils the child by shielding him from the natural results, the wholesome unhappiness, following upon wrong-doing. Every teacher sees so much of this poor counterfeit on the part of both fathers and mothers, that he is tempted to go, at least outwardly, to the other extreme and be unduly severe. What is needed is that larger emotion which sees straight, but sees also with sympathy and kindly toleration. In such an atmosphere there are few children who will not respond. In the intimacy and sacredness of this life of the affections are to be found the best possibilities of the human spirit.

And the second thing children need is just that cultivation of the imagination, which touches with rose and gold the grayest days and envelopes all life with genuine poetry and romance. The most hopeless children that the teacher is called upon to deal with are the apathetic and unimaginative ones. But the more I see of children, the more I have come to believe that such cases are abnormal. Your healthy, normal child has a warm heart and an imagination which outruns Andersen or

Grimm. It is quite possible, however, to kill this splendid play of fancy, and this we often do. We kill it by an avalanche of impertinent facts, by malnutrition, by too great literalness, above all, ridicule. In reality, we ought to nurture it, exercise it, train it, chasten it, expand it. One can do much by the right sort of reading. Fairy stories have a large value, and especially if they are true. For we have true fairy stories and false ones. I call them true if they are true to our best human nature, however imaginative the outer event. And there are stories of adventure—old ones from Greece and Rome, capital ones from the Middle Ages, wholesome ones from such boy benefactors as Jules Verne. But even reading can be so badly handled as to kill the spirit. It seems to me an evil thing, educationally speaking, to make a child under fifteen read anything that he does not understand or cannot be genuinely interested in. Allowed to browse at will in a good library, he will doubtless read much that he does not understand, but he will get his own meaning out of it, different, certainly, from what the author intended, yet of value. In play, in all the imaginary exploits connected with woods and waters, fields and barns, huts and tents, there is a world of fancy much too illuminating to be rudely brushed away or even neglected.

Looking back upon my boyhood, I am grateful that, in spite of its illnesses and little worries, these two essential conditions of education were amply fulfilled. It is the vivid recognition of how much I owe to them myself that has led me to place such emphasis upon the emotions and the imagination in any present educational creed. For quite an opposite reason, I have been led to place an equal emphasis upon the third requisite. In the seventies, the cultivation of the body as a tool was neglected with a thoroness which would appal modern educators, and neglected both at school and at college. During the few months that I attended the Quaker school in Philadelphia, we were marked for our play, but no one taught us how to play better, or to get more out of it. At the university there was no teacher of physical cutture, and nothing that deserved to be called a gymnasium. In the way of sense culture we had almost nothing. A very little was done in drawing, and, of course, we got much incidentally out of the laboratory work, but that more comprehensive cultivation of the faculties embraced under the general term of organic education was a thing quite unheard of. It was this complete absence of bodily adequate training, together, of course, with an intellectual appreciation of its value, that led me afterward to devote so much time and energy to furthering the cause of manual training.

My mother felt very keenly the need of greater bodily development on my part, and did all she possibly could, but a delicate lady living in the city could do very little, and especially for an extremely delicate boy. I learned to ride horseback, to row a boat, to walk considerable distances without fatigue, and to climb our lower and less exacting mountains. I drew a little without instruction, chiefly plans for houses; I had a few lessons on the piano, and I spent many busy hours over printing presses and scroll saws. It was a very deficient physical education, mostly a mere fumbling about. The facilities for physical culture were almost lacking, and for manual training, wholly lacking. Even the scroll work, which looks feeble and inartistic enough at this distance, was then considered the mark of considerable mechanical initiative. I recall two promising experiments in bodily development that were made several years before I went to college, but both failed, owing, I am sorry to say, to my lack of spirit. I was sent first to a boys' boarding school in Doylestown, in the hope that the simple country life and outdoor games would make me stronger. After several weeks' trial, however, our good family physician advised that I be brought home, for he feared that the inevitable home-sickness would really injure me. Afterward I was sent to a beautiful farm in Pennsylvania, and did manage to remain six weeks. It was planned that I should learn farming, as the outdoor life was thought to represent my one chance for good health. I was to go home every six weeks for a visit. At the end of the first six weeks, however, I was too ill to leave my bed, and it was only after my mother had nursed me for several days that I was able to stand the journey home. So that ended my farming. I regret both these occasions and even wish that I had been forced to persevere. They made it easier for me to relinquish other plans later in life, plans that were eminently wholesome, but not altogether agreeable. It now seems to me a grave fault to be what my boys call a "quitter," and I encourage them—and myself, too,—to carry out a wise plan when it is once entered upon, even if it entails some unhappiness, or even not too serious illness. I used to believe that the spirit was willing, but the flesh weak, now I know that the flesh is only weak as the spirit is, and that those of us who have no great show of bodily strength must make up for it by the greater strength of the spirit.

More successful far were the long summers in the country with my mother and sister. These stand out as the brightest spots in my boyhood, and they not only kept my health from utter collapses, but also gave me the best part of my education. Philadelphia, as is well known, is one of the hottest cities. It is built upon what metallurgists call the regenerative principle. The bricks of the pavements and houses absorb the sun's heat during the day and give it out during the night. I was consequently taken to the country in June, and I never returned until September, or even October. This plan came to seem to me so altogether natural and normal that for many years after I regarded persons who remained in town during the summer as rather queer sort of people. My mother was very fond of travel, and usually took me with her. We spent nearly all our summers in New England, sometimes in Connecticut, but more frequently in the White Mountains. In those days such a trip represented quite an outing, and I passed among my playmates at home as a much traveled person. My mother found the mineral waters at Saratoga very beneficial, and went there to the sulphur springs at Sharon many years in succession. I cared much less for such places than for the country proper, but in looking back upon these visits I see that they brought me many novel and valuable experiences. At Sharon, particularly, I was thrown in with some of the Cuban refugees, and thru them got a vivid glimpse of the atrocities of civil war. Afterward, when I came to go to college, I spent all my summers in the mountains, sometimes in western Maryland, where I had delightful southern cousins, and sometimess in Pennsylvania. My father could not be with us for much of the summer, but he was an unusually good correspondent. Sometimes he wrote me in rhyme, usually describing my own adventures. I treasured one such epic for many years—four closely written pages of very fluent and amusing doggerel.

My last long vacation—the one between junior and senior year—was given over to geological and engineering work, and was my first serious essay in the practical world. In the latter part of June our professor of geology took seven of us into the coal regions, and there we camped out for two weeks, while we made a survey of a large anthracite mine. The practical side of the enterprise was not without difficulties, for we were all city boys, little used to roughing it. We had two sleeping-tents, but they were so small that the four cots in each occupied all the ground space and we had to climb into our blankets from the outside. We ate in the open air and cooked under a temporary shed. The professor did all the cooking and was really a very good cook, but he had such a heavy hand in onions that I can almost smell them now. He used to say, jokingly, that he could have made more money as a *chef* than as a professor of geology; but, if so, it would hardly have been in an American hotel. The first time I went into the mines I remember being very weak-kneed about it. I recovered my nerve as the visits were repeated, but I never got to like the underground part of my work. I enjoyed better the long tramps above ground. The laurel was in full bloom and turned the otherwise desolate coal country into a June garden. On one of these tramps we visited the famous Mammoth Vein, and saw men quarrying coal in the open from the doubled over seam—

a clear hundred feet of shining anthracite. Many of the miners were unable to speak English. We saw one such party running in hot haste from what we supposed to be an impending blast. As we could get no answers out of them, we likewise took to our heels and ran as fast as they did, or even a little faster. Presently each miner dashed into the bushes and produced a tin pail—it was merely dinner-time.

At night we sat around a roaring log fire and either sang college songs or told stories, or received visits form the neighboring miners. One evening we were all startled by a bright light streaming over the hills. We thought at first that the Catholic church back of us must be on fire, but later found that it was in reality a brilliant comet, the fiery visitor of 1881, which the superstitious associated with the assassination of Garfield.

The camp lasted for two weeks. I was much too fastidious to enjoy the experience, but I look back upon it as about the most profitable fortnight of study that I ever had. I must add, however, that, in general, camping is too exacting a fine art to mix well with busy days spent in dirty coal mines.

A little later I had the good fortune to get a summer post on a railroad survey in western Pennsylvania. Our headquarters were at Ridgeway. I had hoped for field work exclusively, as I wanted both open-air life and the experience, but I arrived in the midst of injunctions and lawsuits, and had to spend half of my six weeks copying deeds and other dull papers. I wrote at that time a round, copper plate hand, good to look upon, I hope, but very slow and laborious. The pay was a dollar a day and board at the country hotel. This was, I think, the first money that I ever really earned, and it made something of an impression on me. My last three weeks were spent in genuine surveying work, and quite made up for the dull clerical tasks. It was a short period, only three weeks, but like the fortnight in the coal regions it was fraught with valuable results. I learned more in those three weeks than in the whole year at college, but I realize, of course, that it was the theoretical ground-work that made the field practice so helpful. I am mentioning these two occasions in so much detail because the principle involved, the turning to life and experience, came to be a part of all my own policy in education. On the railway survey I was particularly struck with two things, the superior pluck of the men on top, the thorobreds, and the comparative helplessness of the rule-o'-thumb men, the so-called practical people. The strong men of the party, the choppers, chainmen, and the like, were always falling in and knocking off on some pretext or other, while the men of comparatively slender physique, who were doing the real work and bearing the responsibility, kept in condition constantly, and apparently possessed no white feather to display, however strong the provocation. Among the top men were some who had risen from the ranks and had little or no theoretical training. I found them much less resourceful than the college men of far less experience. They did so many things without knowing why, that any deviation from the typical condition set down in the Engineer's Handbook, produced at once uncertainty and panic. And this in general has been the burden of all my experience with the so-called practical people of the world—in any emergency they are pretty sure to be found wanting, for their little rules will not fit all cases.

* * * * * *

My own education has been very irregular. Those who disapprove of it might pardonably say, very faulty. But such as it is, it has been unofficial, has come from persons, from books, from travel, from experience, from the leisure and vacation time of life, that I am, perhaps, prone to underestimate the value of more orthodox methods. The long summer vacations especially, stand out as "growing times." The memory of them has borne fruit in the summer camp work which has filled the last ten summers of my life with the best of its later comradeships. If I seem too much the advocate of the irregular in education, it must be remembered that one can only sincerely praise what has been tasted for one's self and found to be good.

C. Hanford Henderson.

English Composition in the Lower Grades. II

THIRD YEAR.

In the first and the second year the exercises have been almost altogether oral. The reason for this has been given. By the beginning of the third year the child has gained some ease in using this new mode of expression, writing. *As long as writing, per se, is a task to the child, he should not be compelled to write a story.* It is when writing has become as easy as talking, at least when it can be done without conscious effort, that he should write his story. This ease is, to some extent, acquired by the beginning of the third year. Hence the oral and written work receive equal attention this year and the two should run parallel with each other.

This is a very important period and a few hints may be in place. *The central idea to be kept in mind is that the pupil is to talk and write freely.* This he will do under certain conditions. If a boy rises to tell you about the "runaway" he saw before school and if he makes a few grammatical errors, do not stop him in the middle of the story to correct the errors. If the boy is interrupted the story will cease, and he will lose interest. If he has to be careful as to how he speaks, he will not speak at all. The boys and girls from different families and different environments will tell an incident in very different ways. The boy of the street will want to tell the story in the language of the street, and in this language only can he tell the story well.

Here is the beginning of the cultivation of the individual style; but if his style violates every rule, he must be allowed to talk naturally. The story is what is wanted first. Let the errors be noted, corrected afterwards in *another recitation*, or else all spontaneity will be destroyed.

In the written work the same principle holds true, altho the teacher can be more exacting here. The boy may run his sentence together, he may forget that there is such a thing as a capital letter or a period, but he forgets it because he has a story to tell, and that overshadows everything else. The written work must therefore not be too severely criticised at first. The more egregious errors must be noted first and then corrected. The process of elimination of mistakes, grammatical or syntactical, must be a slow but determined progress. These few cautions must be kept in mind or composition will early be a Nemesis.

Oral Work.—As the years pass, the material at hand for the work increases in volume. The first two years the material is limited largely to such things into which the self enters or is a part. At the beginning of the third year the mental vision is somewhat broadened. The child has learned that there are a great many interesting things outside of himself and his environment.

The school-room atmosphere and the words of his teacher, the companionship of his friends, and the interest of the playground have taught him much.

This assures new material. The boy interested in the birds may bring a deserted birds' nest to school. The boy from the farm may bring an ear of corn and then tell its story to the school. Nature, at all periods of the year, is full of material. The reading lessons afford an opportunity for the oral reproduction of the lesson story, and is an exercise in composition as well as in thought getting.

Rambles thru the country in the spring have a composition utility. It will be found that the oral stories of these rambles will be more natural than the written stories. Visits may be made to manufacturing establishments where the process of manufacture is simple. The children may be asked to tell stories of visits they have made, of incidents in their experience. They may be asked to tell what they know of some subject then under popular discussion.

The teacher continues the telling of the story for oral reproduction. The stories may be something like "The Grain of Wheat."

THE GRAIN OF WHEAT.

Last fall the farmer took a grain of wheat and put it in the ground. Then he covered it over with dirt so it could not be seen. For a long time one could not see where it was until at last a tiny blade of green came above the ground.

Before it could grow larger, the cold winds came, the leaves fell off the trees, and soon the snow came and covered all the fields. It seemed as tho the little blade would surely freeze.

When the sun came and the snow went away, there it was still, a little pale but still alive. Now as the sun got warmer, it began to grow ever so fast, until at last it lost its pretty green color and turned yellow. The farmer cut it down and threshed it in the big barn. Then he took it to the mill where it will be made into flour.

WRITTEN WORK.—There is very little difference between the material for the written and the oral work. What will do for the one is suited largely for the other.

The picture card in this period had best be used only for the written work. The pictures of this stage are different from those used in the second year. As the child's vision is larger, the choice of pictures is greater. The same picture will not appeal to every pupil. It is well to let the pupil choose his own picture, and if the teacher assigns a picture, care must be taken that it is a suitable one.

The words and sentences placed at the foot of the pictures are no longer necessary. The imagination should no longer need this stimulus, but should have free play. Pictures illustrative of games the children play, suggestive pictures from nature, and pictures of actions commonly seen, are suitable for this grade.

Further food for the imagination is found in the myth and fairy tale. The tales and myths must still be short and the action brief. The story of Tantalus will interest, that of Atlas holding the earth on his shoulder will arouse their wonder. Tales from Hawthorne's "Tanglewood Tales" will be good material. The "Wonder Book" has good stories. By this time the child has learned to read simple fairy tales. Let these be reproduced. Fairy tales, involving abnormal types, are now in place. The fabulous ogre, witch, and giant are very real to the children. They delight in telling about the beautiful, manly princes and their performance of superhuman tasks to win the fair princesses. Can they not now appreciate the story of the prince striving for his princess, for do they not have one or two playmates for whom they would do anything? Can they not appreciate the story of the giant who can do all things, for have they not leaders in their play who, to them, are veritable gods? The child, like the man, delights to find some one interested in the same things in which his interests lie. For this reason he will devour Grimm's and Andersen's Fairy Tales.

Simple historical stories may be used. These should be stories of great men. The stories should be given a living interest by laying stress on incidents in the youth of the great men.

FOURTH YEAR.

During this year the oral work will receive less time than the written. *The oral work should receive about one-third of the time and written work two-thirds.* No arbitrary rule may be made, but this has been found to be a good division of the time. *The oral and written work must run parallel with each other.*

The end to be kept in view is to make the transition from oral to written work so gradual that the pupil will not know that he is passing into the more formal composition work. This does not mean that the oral work will cease altogether, but it assumes a different form of school activity. Thru the oral reproduction of stories, the pupil has been prepared to recite intelligently in history, geography, and the other studies.

The fourth year is the first year of the formal composition. If the work of the first three years has been faithfully performed, there will be no difficulty in the transition.

Oral Work.—As the years pass, the material at hand increases, almost multiplies. Each of the studies of the period gives ample opportunity for oral exercises. History especially becomes valuable and the fairy tale and myth, while still used, have lost their chief charm. The children delight more in realities and begin to see the discrepancies in the fairy tale and myth. They have their little troubles in school and at play. The fairy prince loses much of his charm and the real man who has "dared to do" great things possesses a more vital interest to them. Does not biographic history fill the need here? The story of Alexander's youth, the taming of Bucephalus, the cutting of the Gordian knot, his conquests, will all be real to them. They will delight in the life of Lincoln and our immortal Washington. These stories are read or told for oral and written reproduction.

WRITTEN WORK.—Written work is in the preponderance. There are four great sources of material for written composition this year—nature, books, school studies, environment.

NATURE.—The child has eyes and ears. The Bible says, "He that hath ears, let him hear." The dogma of modern nature study is, "He that has ears, let him hear; he that has eyes, let him see." Nature study by this time should have opened the eyes and ears to every changing scene and every tuneful sound in nature. After teaching a lesson on the bee, why not have the pupils write a story about the bee? Call it a story and not a composition, it is best to keep that word in the background, and one word is as good as the other in this instance. The boy has seen the bee, he has heard its music close to his head, and perhaps he has inside information about the bee thru a third sense. He is therefore ready to tell wonderful things about the bee. You may notice that in the majority of the compositions about the bee he will not regard it as a producer of honey, but rather as a producer of aches and pains. The bee and its sting are very closely associated thru bitter experience, in his mind. Every changing aspect of nature gives an opportunity. If there is a snowfall, seize the psychological moment and you will receive a good composition.

The flowers, the birds, the trees, and the brook and wood, all these have associations in the pupils' mind. These associations expressed on paper often result in compositions not lacking in beauty and grace.

BOOKS.—The pupils at this age possess a great interest in real live persons. This opportunity should be seized. Let a boy get a simple story of Lincoln's rise from poverty to greatness, he will devour it, and besides writing an excellent composition, will be benefited morally by the story. He can sympathize with Honest Abe, for he recognizes some of Abe's struggles to be his own. Nothing makes boys "stick" closer together than community of interest. Nothing draws a boy more to a man in a book than to find the man when a boy was as he is now. Give the leader of the boys in the school a story of Washington and see what he will do. He finds in Washington a leader like himself. The school ground will soon resound with the tramp of youthful soldiery and with sharp military commands. Will he not be perfectly willing to give you a story for your kindness in making him acquainted with such a man?

What girl will not be delighted with "Alice in Wonderland" or the charming "Little Women?" Will she not be kind enough to write for you one of Alice's adventures among her strange friends or write you a description of one of the "little women"? This is the forming of a "mutual benefit association."

Thus thru books the pupil gains composition material and is brought into direct communication with people whom he appreciates. He will thus delve deeper into literature for other characters and the teacher has opened the beauties and good of literature to a hungry soul.

School Studies.—History has already been discussed. Reading possesses possibilities for written work altho its chief use lies in oral work. Geography holds a large place here. Local and state geography are the province. Does the town have industries? Why not visit them, if possible? This is the stage when the constructive instinct is coming into life and making itself felt. The boy will therefore be interested in all manufacturing processes. Let the farming industries be described. No matter whether the district be agricultural or manufacturing, both have opportunities.

Picture Cards.—The picture card now has a new use. In the second and third year it was used exclusively for written work. From the fourth year on it may be used for both written and oral work. Let the children choose their cards, study them for a few minutes, and then let them tell the story. The imagination thru use and under direction has developed so that the process of association (imaginary) are more rapid, hence the oral story within a few minutes.

Many teachers say that the picture cards can not be used with any degree of success. Where there is failure there is usually a lack of obedience to either *the law of appeal* or *the law of suggestion.*

The law of suggestion has been mentioned before. It may be briefly stated:

Every picture given to a child must be representative of objects, actions and qualities which enter into associations already made in the child's mind.

The law of appeal may be shortly stated:

Every picture given to the child should be representative of objects, actions, and qualities which possess interest to the child.

The card given a boy or girl may be suggestive but it may not appeal. If to a girl who has very little interest in dolls or doll play, you give a card illustrative of doll play, the card will be suggestive but it will not appeal; hence the story will not be the best the girl is capable of writing. It is not necessary to go into detail any farther as the truth of the law is evident to one who knows the child.

FIFTH YEAR.

Because of the very nature of the boy and girl at this period, much care must be used in prescribing composition work. The fifth year is the year when several instincts are coming into life, and when others have developed to a point where they may have to be restrained.

The pupil of eleven or twelve years of age shows a strong spirit of independence. This shows itself in many ways. He is not so amenable to discipline in school and at home. He desires to do what his interests demand and to roam where his desires lead him. He desires to see all he can, to experience as much as he possibly can, in fact he begins to realize his power and wishes to be master of himself. This period, therefore, is of great pedagogic interest and value.

Since he begins to realize his powers, it is necessary to direct and restrain them. He must be shown what some of his powers are. If at this period the average pupil is not under rigorous discipline at school and in the home, the best time for the teaching of moral restraint and that of the law or "powers that be" is lost.

Emulation is awakening and this with the spirit of independence works a great change. The authority of the "boss" or leader like that of the teacher and parent is apt to suffer. The "boss" has become tyrannical, he is overbearing, he can no longer be tolerated. Thus reasons the youthful reformer and he proceeds to put forth his belief, sometimes to his grief.

The constructive instinct is beginning to ripen. The boy likes to spend his time in his carpenter shop, he wants his set of tools and a big jack-knife. It is the period of cut and bruised fingers which count for naught because of the pride in the wagon or house he has made.

This is indeed a pregnant period and the opportunities of these ripening interests must be seized in composition as well as in the other forms of school activity.

Oral Work.—The oral work has reached such a point where it assumes the place in the school activity desired. With his previous training, the pupil should now be prepared to give intelligent grammatical oral recitations in history, geography, etc.

At intervals once or twice a week he should be required to stand near his desk and tell to his mates some historical story or some incident. Some clean newspaper and a few magazines should be found in this grade. A good exercise is to have a pupil read an article and then tell what he can about it to his mates. A few minutes once or twice a week will be sufficient for this.

Written Work.—This is the first year of the formal composition writing.

Attention should be paid to manuscript with reference to margins, neatness, folding, and numbering of sheets. Special stress should be laid on spelling, punctuation, and grammatical errors. Stress on detail is not so apt to repress free expression as in the earlier years.

Since this is the period when the constructive instinct asserts itself so vigorously, it must be used in composition work. Every boy is interested in inventions. He is interested in any constructive process. Let him know the story of the genesis of the cotton gin, the reaper, the printing press, and he will write an intelligent composition. Whether the children live in the city or country they have the opportunity of seeing men doing real work. They have often watched the blacksmith at his forge or the machinist in his shop. A new house under construction, any form of activity, is an object of curiosity and the children ask many questions of the workmen. They are therefore well prepared to write. It is in these things they are interested, therefore they are willing to write concerning them.

Pictures have not lost their charm nor their usefulness. Many of the copies of great paintings are excellent material if they are suggestive. A picture full of meaning to us may be meaningless to them. The animals of Rosa Bonheur and the children of Meyer von Bremen are good subjects. Pictures of the nature of the "Angelus" are valuable. Some pictures with a special history like "The Last Supper" are useful. A recent volume, "Great Paintings described by Great Authors" is suggestive along this line.

Since the spirit of emulation is strong, why not present incidents with right species of emulation? History is full of stories of the striving after the great and the good and the true. The lives of men of the stamp of Savonorola, Luther, Wycliffe, will appeal strongly to the children. The lives of all men who have climbed the social ladder from obscurity to fame are suitable, for they are the echo to which he wishes his own life re-echo.

The boys and girls have become independent readers and have reached the age when they should be able to make abstracts of what they have read. The myths and fairy tales have not lost all their charm and can be sparingly used.

RESUMÉ.

The attempt has been made to outline briefly the work of the first five years. The bold lines have been drawn; it is left to the individual teacher to fill in the shading, to apply the principles.

The aim to be kept in mind is to have the composition work follow the pupil's line of interest, to adapt the work to his ripening instincts.

This is one activity where it is better to drift with the tide than to attempt to stem it. Spontaneity and free expression, valuable tools, should be the result of this training during the first five years. This training should be a good basis for the more real work in composition.

This course besides giving training in composition should acquaint the children with the beautiful, the good, and the true as expressed in literature and art. It brings them in contact with past and present. This contact can not help but be beneficial. Writing of these men and events can not help but to impress and leave the mark for all time. Some of the thought must become ingrained into the mind. Thus this course has not only the utility but also the culture value.

Besides having the training in composition, the other subjects of the school have been broadened. The various compositions of the later period must have required some investigation, thus at an early age is formed the habit of research. And not least of all, this work furnished the teacher a valuable and wholesome means to study each child. The child's very self enters into each story or composition and unconsciously its whole life and thought are laid bare to the observing eye. How much can we not learn from this observation which will help us in our labors with the children!

Newark, Del. GEORGE S. MESSERSMITH.

The Doctrine of Interest

II. American Theories.

1. PROFESSOR DEWEY'S THEORY.

We have now to consider another view of interest which is a sort of compromise between Hegelianism and Herbartianism. This is found in the remarkable paper by Dr. John Dewey of Columbia University, on "Interest as Related to Will."[1] Professor Dewey restates the position of the Hegelians (which he calls the effort theory, because its advocates claim that character is developed only by overcoming difficulty) and of the Herbartians substantially as follows:

(a). *Effort.*

1. Life is full of things not at all interesting which must nevertheless be faced.

2. Unless a pupil is trained in uninteresting work his character will either break down when such work comes to him, or he will avoid the issue.

3. Always to appeal to interest is to distract the child and to destroy continuity of activity.

4. By making all things play and amusement the will is never called into action at all.

5. Everything is sugar-coated and the inevitable outcome is a spoiled child who does what he likes.

6. It is intellectually harmful to be always harping on interest, because attention is directed to the attractive *wrappings* of things rather than to essential and important facts.

7. The fact that two and two make four is a naked fact which has to be mastered, and the child gets no greater hold upon the fact by having attached to it amusing stories of birds or dandelions. His attention goes out to and takes hold only of the amusing images. The theory thus defeats itself.

8. It is better to let the child know from the start that certain facts have to be mastered that have little or no interest, and that the best way to deal with them is thru effort.

---

[1] University of Chicago Press, 156 Fifth Ave., N. Y.

(b). *Interest.*

1. It is the sole guarantee of attention.

2. If the pupil is interested in a study, he will master it.

3. If he is interested in moral lines of conduct, he will follow them.

4. If he is not interested in such conduct we have no guarantee that he will follow it in any given case.

5. As a matter of fact the theory of effort is a failure. It is absurd to suppose that a child gets more discipline out of a matter when he goes at it unwillingly than when he follows it out of the fullness of his heart.

6. The theory of effort simply says that unwilling attention is better than spontaneous attention.

7. The child brought up on the effort plan acquires marvelous skill in *appearing* to be occupied with an uninteresting object when his heart is elsewhere.

8. While the effort theory is always holding up to us a strong, vigorous character as the outcome of its method, as a matter of fact, such is not the result. It produces either a narrow bigot or a mechanical blockhead whose spontaneous interest has been squeezed out of him.

(c). *Interest is Self-Expression.*—After thus considering the claims of both theories, Dr. Dewey decides that both are wrong in assuming that the end to be reached by interest is external to the self.

1. The effort theory is wrong in assuming that certain outward postures or acts are will-training. The will is manifest only in the *spirit or motive* in which the work is carried on. The man who unwillingly walks a treadwill is not getting any moral training. He is only exercising his muscles.

2. If a task is set merely as a task, the child is simply acquiring the habit of divided attention, devoting a minimum to his task, but at the same time leaving his mental imagery free to play upon matters of real interest to him.

3. The principle of *making* things interesting (Herbartian)

is as great a fallacy as the effort theory, because it fails to recognize the element of self-expression.

4. The demand for self-expression is imperious, and cannot possibly be suppressed. If the conditions are such that the pupil cannot put his heart in his work, he learns in a most miraculous way the exact amount of attention that has to be given to his task, while saving up the rest of his mental powers for following out lines of imagery that appeal to him.

5. There are two kinds of pleasure. One is the accompaniment of activity. It is the internal realization of outgoing energy. It is found wherever there is self-expression. The other comes from contact with something external. This is the kind we get when we make things interesting. Some kindergarten children are as dependent upon bright colors and agreeable sounds as the drunkard upon his dram.

6. Interest has three aspects:

(a) First, it is active, projective, propulsive, dynamic. Active interest is an impulse. The impulse is simply the self going out; in a word, it is self-expression.

(b) It is also, secondly, objective. Impulse is blind. It does not know what it wants. But as it finds outlet and expression it reveals itself. The rag doll is interesting to the child because it sets before him in objective shape some capacity which he already possesses, and of whose mode of translation into action he is thereby made conscious. The object transfers the impulsive activity into intellectual terms. Hegel says a conscious being "must first act, and then live to know that he has acted." This is the paradox of consciousness, that the only way to know ourselves is to act moment by moment and then to take cognizance of these acts. The pleasure we take in seeing the soul reflected in our acts is the objective side of interest.

(c) Lastly, interest is subjective or emotional. This is the internal realization of the value of what we are interested in.

7. There are two kinds of self-expression, direct and indirect.

(a) Direct self-expression takes place when the present activity is the end in itself. Such is the play at the theater, and esthetic appreciation of any kind. When you hear an opera or see a fine picture, you have no end beyond present enjoyment.

(b) Indirect or mediate interest occurs when we have an interest in a certain end, but find that the end can only be realized by certain necessary steps which we recognize as means. Our interest in the end is then transferred to the process by which we reach it. The explorer who wishes to reach the North Pole finds every mile of the journey a step toward the realization of his end. So he is interested in it, even if he suffers from the rigor of an arctic winter.

The reader will remember that Herbart makes this same distinction between direct and indirect interest.

8. When there is direct self-expression, when energy is put forth for its own sake by spontaneous impulse—there is neither *effort* nor desire. Both these terms imply an end more or less remote, which can be reached only by overcoming intermediate obstacles. When we are thinking of the *process* necessary to realize our idea, we call it effort; when we think of the *tendency* of existing energies to push on toward the realization of the idea, we call it *desire*. The terms are not opposites but correlatives. The tendency of an end to realize itself by overcoming obstacles is effort; the tendency of the present powers to continue the struggles for complete self-expression in an end remote in time is desire.[1]

9. This prepares the way for settling the question of pleasure in relation to will.

Professor Dewey says those are wrong who say that pleasure is the object of desire. These divide themselves into two schools. One school says since pleasure is the object of desire, it is the standard of conduct. These are the Epicureans, whose motto is: "Let us eat and be merry, for to-morrow we die." The other school says, since pleasure is the object of desire, desire must be eliminated from the moral will. Virtue consists in the suppression of desire. The Herbartian doctrine is criticised on the ground that it is hedonism (Epicureanism). Interest is pleasure, and since interest is the end of education, morality is nothing but the pursuit of pleasure.

---

[1] Interest as Related to Will. Dewey. University of Chicago Press.

The Hegelian doctrine is objected to because, by its emphasis upon effort and its suppression of interest or pleasure, it reveals the morality of the Stoics.

The escape from the dilemma is accomplished by the analysis made in the preceding paragraph.

Interest is self-expression; self-expression is of two kinds, direct and indirect. In direct self-expression there is neither effort nor desire, since the pleasure of the mere activity —the outgoing energy—is the only end in view.

In indirect self-expression the end is remote and can only be realized by certain necessary steps which are recognized as means. Our interest in the end is then transferred to the process of reaching it. This is mediate or indirect interest. But we have just seen that it is also desire. In other words, desire is mediate interest. The object of each is the satisfaction that comes from self-expression. To appeal to interest, therefore, is not necessarily to eliminate effort, since desire and effort are correlative phases of the process of realizing a remote end. Nor is effort any the less educative because it is pleasurable. A quinine pill is not less efficacious for having a sugar coat; there is, therefore, no virtue in swallowing a pill just because it is bitter. We do not minify the sense of duty by being cheerful. Pleasure is the song that duty sings while duty works.

(d). *Criticism.*—Dr. W. T. Harris, who is the most conspicuous defender of Hegelian ethics and pedagogy among American educators, finds fault with Herbartians and with Dr. Dewey for not specifying the kind of interest they mean. "Interest is a low thing, a high thing, and a middle thing. . . The good and the bad are brought together under one term. . . Self-activity itself is a law of development only when man wills to promote the best self-activity in the world at large."[1] The boy who smokes cigarettes, the professional burglar—are they not interested? Is not the process in each case self-expression? According to the preceding theories, yes. Then self-expression, interest, and pleasure may be legitimate. Neither Herbart nor Dewey has recognized or explained the difference between the good and the bad.

On the other hand, Dr. Harris has admitted that Professor Dewey's analysis of interest—especially his discovery that it is a form of self-expressive activity—is an exceedingly valuable contribution to pedagogy.[2]

It remains only to point out that Professor Dewey's doctrine of interest is but a part of his larger theory of *education by living*. The entire educational process is conceived in terms of self-expressive activity. The child is to get experience and insight by performing acts typical of those which have brought about the progress of the race; these processes, because they are typical, commend themselves as reasonable, and thus bring the double pleasure—the pleasure of mere activity, and the internal realization of the value of the product, which Dewey calls interest.

2. DE GARMO'S THEORY.[3]

"Instruction must so form the circle of thought," says Rein, "that *volitional activity* will develop from it. But knowledge is frequently only a dormant store of fact." Mr. Bryant somewhere expresses the same thought in these words: "The teacher must so teach that the ideas of the pupil shall not be mere ideas but shall be fraught with *motive urgency* in the regulation of conduct."

These extracts, which are not alluded to by the author, furnish the text of Dr. DeGarmo's latest book. How to teach so as to beget "volitional activity" in children; how to instruct them so that there shall be "motive urgency" in their lessons,—that is the serious question for the teacher.

---

[1] Interest as Related to Will, p. 248.

[2] Educational Review, May, 1896.

[3] Interest and Education, by Chas. De Garmo. Macmillan & Co New York, 1902.

When one goes to a lecture one usually comes away with more or less definite ideas on some topic which before was vague or entirely unknown. This represents what DeGarmo calls *clearness* of ideas. It represents also a large proportion of our teaching, in which an effort is made simply to have things understood. That end being reached, the whole object of the lesson is accomplished. Such knowledge affects conduct only in a remote and incidental way. But when one listens to a good sermon—a real sermon—one finds truth presented with the definite purpose of arousing in the hearer a desire to put the instruction into practice. Suppose the text is the good Samaritan. The preacher will endeavor to bring the incidents of the parable home to people in such a way that their emotions are touched. They will see the beauty of goodness and will be so wrought upon that they will depart with a silent resolution to apply the teaching to the betterment of their own conduct. A sermon that has not this effect is merely a lecture; it is no sermon at all. The real sermon always has the personal appeal to righteousness, and leaves the hearer with a desire to realize the ideal that has been pictured for his imitation.

This, in teaching, is what Prof. DeGarmo calls *vividness of ideas;* and practically the entire book is devoted to an explanation, first, of what is meant by "vividness," and secondly, of how to secure the quality of vividness in teaching.

The author shows breadth of view in discussing interest, as he does in the case of concentration. Tho recognized as the chief of Herbartians in America, he repudiates the Herbartian theory of concentration and announces his belief in co-ordination; and in the book under consideration he abandons the Herbartian doctrine of interest and adopts the theory of Dr. John Dewey, to whom the work is inscribed.

Three chapters of the book are devoted to a restatement of Dewey's doctrine of interest. The essence of the theory is that interest is *self-expression.* When school work appeals to a child as being worth doing in itself from the pupil's point of view, then the school *is life*, is a *vital institution*, and furnishes the opportunity for *self-expression*. All these terms are synonymous with Bryant's "motive energy," Rein's "volitional activity," and DeGarmo's "vividness of ideas."

If we succeed in arousing the right kind of interest, our lessons will have the same effect upon children that a good sermon has upon an adult. It will lead to doing something. "We must attach," he says, "ideas to the pupil's inherited motor mechanism." And again: "Vivid ideas glow with interest, because upon them turns the happiness or destiny of the individual. The teacher may in vain give the urchin clear ideas about the harmfulness of the cigarette; but the single vivid idea that to smoke is manly, is enough to make him search the gutter for opportunity. We must seek to counteract bad vivid ideas with those that are good."

There is much quotable material in the book. It is, in fact, not only the latest, but the best exposition of what President Schurman has called the greatest word in education: Interest.

III. Empirical Studies of Interest.

Such are in brief the principal theoretical doctrines of interest. There have been made in recent years a number of studies on interest on scientific lines. The remainder of this chapter will enumerate the conclusions of some of these.

1. ALFRED BINET.

The first special attempt to study the scope and conditions of the interests of children was made by Alfred Binėt of Paris, in 1890.[1] His method was to question one child at a time as to certain common objects, such as knife, bread, doll, water, hat, etc. From the data thus gathered, he drew these conclusions:

(1) That children are impressed to a very small extent by the visible aspect of things.

---

[1] Studies in Education, Barnes, 1896-7. Leland Stanford University.

(2) That their greatest interest is in the *use* of things.

(3) That their ideas possess only slight abstract characteristics.

2. EARL BARNES.

Professor Barnes, acting upon the hint thus furnished by Binet, made a similar experiment in 1892.[1] He employed the same list of words that Binet had used but his children were older and told on paper what objects are. His conclusions, based on over two thousand papers, are as follows:

(1) That at the age of seven, "use" is the thing of transcendent importance in the thoughts of children. That is, if asked what a thing is, they tell what it *does* or is *used* for.

(2) At the age of eleven, "use" is still supreme, but "larger term" and "substance" are assuming importance. By "larger term" is meant referring an object to its genus; as, "a clock is a time-piece." By substance is meant what an object is made of; as, "a clock is made of wood."

(3) At fifteen "larger term" is more important than "use;" "substance" and "structure" are getting more and more prominent.

3. DR. SHAW.

At this point, the late Dr. Edward R. Shaw, of the School of Pedagogy, New York University, took up the study, repeating what Barnes and Binet had done, but adding several new features.[2]

He had a larger number of objects, and classified his answers under a larger number of heads. As a result of these variations, and also by reason of a different classification, in which answers appear under "action" that were classed under "use" by Barnes, Dr. Shaw is inclined to revise some of the opinions expressed by his two predecessors. Contrary to Binet's declaration that children are very little impressed with the visible aspect of things, Dr. Shaw finds that *quality*, *structure*, *substance*, *color*, and *form*—all embodied in "visible aspect"—constitute thirty-five per cent. of his answers.

---

[1] Studies in Education. Page 208.

[2] Child Study Monthly, August, 1896.

4. MRS. BARNES.

Another valuable investigation of interest from the practical side is that of the late Mrs. Mary Sheldon Barnes on "The Development of the Historical Sense in Children."[1] Her conclusions, supported by ample data, are these:

1. History is a proper subject for children from the age of 7.
2. Time is badly understood until 12 or 13, hence it should be visualized by means of charts.
3. Children should not be specially trained or urged in processes involving inference until 12 or 13.
4. History should first interest itself in the biography of heroic characters.

5. JOSEPH S. TAYLOR.

The next study of interest we mention was made by the writer and published in the *Pedagogical Seminary.*[2] It is an attempt to employ interest as a criterion in ascertaining the value of educational work. The children were asked what subjects they particularly *liked* and *disliked*, and why. Over 2,000 papers from New York City and Winona, Minn., were collected. The result showed arithmetic to be the subject of transcendent interest: 42 per cent. expressing a like and 14 per cent. a dislike for it. The popularity of the other subjects is in the following order: History, 38 per cent.; geography, spelling, reading, grammar, drawing, writing, music, nature study. Some of the conclusions drawn are:

1. The test of interest enables a principal to locate poor teaching. Find out where children dislike a subject, and you know where the poor teaching is done.
2. Such a test is valuable to a teacher. It enables him to discover the defects in his own methods.
3. The majority of children leave school before they reach

---

[1] Studies in Education.

[2] Pedagogical Seminary, vol. 5. Clark University, 1898

the higher grades. Such a study shows who the uninterested children are and why they leave school. In this way, a remedy may be suggested by revealing the obstacles that are in the child's way.

4. It is a test of the success or failure of a school system. If we are to adapt our instruction to the psychological needs of the child, rather than the logical demands of the science we are teaching, we can find no better test of success in this direction than the touchstone of interest.

6. CLARK WISSLER.

Still another study to which attention is called was made by Clark Wissler on "The Interests of Children in Reading Work."[1] His conclusions are these:

1. The literature most appreciated by pupils is that which presents the true, the beautiful, the heroic, and the good in the same concrete way in which it is found in the world around them. Fiction and poetry are the forms preferred.

2. They demand *complete* stories, not stories in outline.

3. Sex differences increase with the grades. Girls take interest in the emotional side of life; boys in activities and struggles.

7. PROFESSOR KIRKPATRICK.

One of the most recent studies on the subject, and the last we shall mention, is by E. A. Kirkpatrick on "Children's Reading."[2] Like all of Professor Kirkpatrick's work this study is carefully worked out, and his conclusions, to which we can merely allude, are worthy of careful attention:

1. Interest in fairy tales culminates at the age of nine.

2. This interest is accompanied and succeeded by interest in folklore and legend.

3. Interest in biography and pioneer history begins to dominate at the age of 12.

4. Interest in stories of travel and adventure culminates at 13 or 14.

---

[1] Pedagogical Seminary, vol. 5.
[2] Northwestern Monthly, Dec., 1898, January and March, 1899.

IV. Conclusion.

The most casual reader must see that the subject of interest, irrespective of what may be one's speculative bias as to theories, is of paramount importance in the practical work of education. Neither teachers, nor superintendents, nor the writers of books can afford to ignore such studies as we have quoted above. We have in nearly all of our States compulsory education laws and an expensive force of attendance officers to keep the children in school. If we can solve the problem of interest, we shall be able to abolish all truant schools. We shall also increase our attendance by a large percentage, because very many children now go to work at the age of fourteen who leave simply because they are tired of school.

How large a factor interest is in the success of a teacher is evident from the fact that nearly all the troubles of a novice in teaching are due to his inability to keep his class interested. Where interest abounds, no force or authority is needed to keep order, no urging is required to make the children study.

Interest as *an* aim in teaching—that is, *one* of the aims—is one thing; interest as *the* aim in teaching—that is, the *primary* aim—is quite another. I take the position that interest is one of the legitimate and necessary aims in teaching, but that it must not become the only, or even the chief aim. Nothing in our profession is more desirable than the possession of a sane mind, that takes everything in its due order and proportion and never loses the proper perspective of the various educational organs and processes. *Interest*, *apperception*, *correlation*, *culture epochs*, are all fruitful ideas; but when any one of them is unduly emphasized and forced into a rank which does not rightfully belong to it, it is capable of producing serious mischief.

It is quite certain that the average teacher undervalues interest as a force and aim in teaching. We plod on in the beaten path, doling out so much arithmetic, history, or geography each day as custom or habit or the course of study may prescribe, and seldom stop to inquire what the pupil may think of the operation. If a child demurs, the only consolation he gets is that "all the rest have to do the same"; or, "I did it when I went to school." We do many things that seem irrational to children, and *are* so from their standpoint. I believe it will pay in most cases to stop and inquire, when children dislike school work, *why* they dislike it. The difficulty may be inherent in the subject, and then it is a fair question to demand why such subject should be in the course of study at that particular time and place. The difficulty may be in the pupils or the teacher, in which case a remedy may be close at hand.

Most schools have two types of teachers, the popular and the unpopular. Public opinion in the little school world in some way tests and weighs each teacher and decides that upon the whole it is pleasant or disagreeable, profitable or otherwise, to be in her class.

A principal starts out two such classes at the beginning of the term, both having the same grade, working apparently under the same conditions, and each with a register of fifty. At the end of the term the popular teacher will have left fifty pupils, the other thirty or thirty-five. On one pretext or another children manage to get out of an unpopular teacher's class. Now, here is a case of interest. I do not believe the most uncompromising Hegelian would contend that a pupil can do as well in a class where he dislikes the *work* and the *teacher* as he can where he is *interested* in *both*. So the argument of the economy of effort and efficiency of work is in favor of interest as an aim in education. The child's right to happiness is an argument on the same side.

But there is another side of this question to which attention should be called. There is a class of writers and supervisors not engaged in the actual work of teaching, who tell us that if the pupil is interested in his work, if he makes an honest effort to get it right, that is all we ought to expect of him. "Give a child credit for his effort, his intention, even if he gets no result. He has tried. What more can you expect?" The obvious reply to such talk is that this world is not run by people's good intentions. In actual life results only are accepted as proofs of efficiency and success. When a boy goes to business his employer is not satisfied with mere efforts and good intentions if nothing is accomplished. And, therefore, the educational doctrine to which we allude does not and cannot prepare a boy for complete living, or even partially successful living, by any of the bread-winning arts. It is therefore false doctrine, and should be stamped out wherever and whenever it makes its appearance. The literature of State and National conventions of teachers is full of this error. So are scores of books widely read by teachers.

The cure of this form of heresy would be accomplished by putting the dreamers who utter it in charge of classes and compelling them to prepare pupils for promotion. They would soon discover that "hopes" and "intentions" and "honest endeavors" never put the first potatoes on the market, nor promoted ninety per cent. of a class. Watch your educational *processes* as much as you please, but do not despise the *product*, if you expect your education to accomplish anything.

Interest, then, is not enough. Secure it by all means at your command, but do not stop when you have it. Make it an effective force to conquer difficulties and reach other ends.

Another class of people that make mistakes about interest are new and inexperienced teachers. In their training classes and books of pedagogy they find so much of "*apperception*" and "*interest*" that they fall into this very common error. *They tacitly assume that when a thing is once understood by a class, no further effort is required on the part of the teacher in that direction.* On the contrary, mere instruction—the mere statement of a fact or explanation of a rule—is but a small part of teaching. No teacher can hope to succeed who does not make systematic provision for *drill*—constant and thoro—in all the things he teaches. This is what may be called the discipline of instruction. Call it old-time drill, "grad-grind," anything you please, Mr. Reformer; but I defy you to put boys into the next grade on any fair or reasonable test without it. At least once a month all the ground that has been covered should be gone over again. Apperception is one of the laws of memory, but it is not more important than frequency of repetition. The old man who knows his boyhood days so vividly does so because hundreds of times during a long lifetime these events passed thru his consciousness, while more recent events have not this advantage. The monthly review should include not merely the month's work, but all the previous work of the grade and of every lower grade. Constant reviews *in ever-varying forms* are absolutely essential if our teaching is to produce anything but scatter-brains, people that have a vague, confused knowledge of many things, but certain, usable knowledge of nothing. The old schoolmaster was not *all wrong*, nor is the newest educational theorist necessarily *all right*. The more I study pedagogy, the more experience I have in actual school work, the more I seem to come back to the old-fashioned opinion that the three R's thoroly mastered, with history and geography added, are after all the substance of a good elementary education.

New York. Joseph S. Taylor, Pd.D.

The new education brought happiness into the school-room. Under the old règime happiness was too often excluded, and a school was considered good in proportion to the rigidity with which the exclusion was carried out. The teachers of the present day strive to render going to school as joyous as is consistent with the aim of laying the foundation for still greater happiness in later life. It is this endeavor which most distinguishes them from their predecessors in the old school.

Parker found the teacher's life spent among the superficialities and machinery of traditional routine, with never a dream that beneath all the work done at school there was something divine that must be emancipated and brought to light and activity. By intensity rather than logical strength he effected a change which made the living child the center of solicitude at school, or, more correctly speaking, which abandoned the teaching of the three R's for the teaching of children. School work was lifted from a logical basis up to a psychological and sociological plane.

The School as an Agency for the Moral Training of Children

FAILURE to appreciate the achievements of the schools in the domain of morals is quite general. Not long since I heard a distinguished speaker say from the lecture platform that the American public school does next to nothing for the moral training of the pupils who attend it. While this may be regarded as an exceptional indictment, I apprehend that public attention in general is quite exclusively given to the intellectual results for which schools are correctly supposed to be responsible. If such be the case there is a failure to recognize the aims which lie nearest the heart of every really competent teacher, and a failure, equally marked, to appreciate the most important results achieved by every good school.

All intelligent people know how close is the connection between intellectual training, moral training, and physical training—a connection so intimate that in practice they cannot be separated. For my present purpose, however, it is quite possible to discuss the second form of training with slight regard to the first and third. To deal adequately with so great a theme would require a volume, and yet some good may result from suggestions which can be embodied in a few pages.

Since schools always respond more or less completely to the demands made upon them by the public, it is essential that such demands be the outcome of a clear perception of the great purpose for which schools exist. In what I shall say, I have no disposition to obscure results of an intellectual kind for which schools should be held responsible. Failure to produce good results in this field cannot be explained or excused by a plea that the schools have been intent on other ends. If, however, our wise man is right in saying that "Conduct is three-fourths of life," and if it is agreed that the home and the school are the great agencies for determining the present conduct of the children and youth now in their joint care, and for determining their subsequent conduct when they shall have become men and women, it is vitally important to keep in the foreground their joint responsibility.

There are schools of all degrees of efficiency and homes of all degrees of excellency. If I quote the opinion of a thoughtful writer to the effect that "The American home, the very heart of society, out of which are the issues of life, is falling further short of its moral and religious opportunity in the cultivation of youth than any other social institution," I bring no sweeping indictment against all homes, but only suggest the increased responsibility placed upon the school. This added burden schools should not be called upon to bear, but they must doubtless do their best with it, until, thru reformation of family life, where needed, there shall once again be a fair division of responsibility between the home and the school.

If next I venture to characterize the behavior of the present generation of American children and youth, it should be fully understood that I speak only of those whose deportment causes regret and misgiving in the minds of all thoughtful people. As some one has aptly pointed out, with the English the great word is authority. Tell an Englishman that such and such is the law and he replies, "Very well, that settles it!" With Americans the great word is freedom. Tell an American that the law is so and so, he rejoins, "Is it? How can I get around it?" It is not easy for adults to distinguish between liberty and license, and children fail conspicuously to do so. Intelligent foreigners observe with surprise, and comment with severity, on the prominence permitted to children in the American home. In many instances the old maxim that "Children should be seen and not heard" has no application. As one observes the deportment of many American children, not only in the family circle, but upon the street, in public conveyances, at places of amusement, at lectures, even at Sunday Schools, he sees that they are suffering from our exaggerated national regard for freedom.

It happens with considerable frequency that schools are charged with responsibility for the lack of respect and reverence so often shown by children, for their disregard of others' rights, convenience, property, or sensibilities, for the incipient hoodlumism or the flagrant rowyism to which we are sometimes subjected. With no wish that schools shall evade any responsibility which properly attaches to them, I must insist that the charge just alluded to is most unjust. It arises from a failure to realize that every good school, even every fairly good school, is an effective agency for the moral training of its pupils. And this purpose is uppermost and dominant in the minds of all truly representative teachers. As evidence I quote the words of an honored leader among them: "The highest efficiency of the public school is tested by its results in moral character, and hence its central aim is effective moral training. It is vastly more important that the present generation of youth in our schools leave them loving truth, purity, right, and honor, than that they leave them good spellers or good arithmeticians."

So far, then, from charging schools with any considerable responsibility for whatever is unlovely in the manners and conduct of young America, one who truly knows the situation can only shudder as he thinks what young America would be, were it not for the ideals cherished, valiantly striven for, and measurably attained, by a great army of teachers. Not only is it true, as already set forth, that schools respond more or less completely to the expectations of the public, but it is equally true that schools can only be at their best when there is an intelligent appreciation of the finest results which they produce. It is probably true that the demands put upon schools to-day in each of the domains of education, physical, intellectual, and moral, are severer than ever before. While there is no reason to think that the human mind as an instrument has improved since the days of Plato, there is vastly more knowledge and information to be acquired, the problems of life have become more numerous and complex, and the training required for their solution has become equally varied. As our population becomes in ever increasing degree an urban population, we are compelled to substitute the formal and prescribed exercises of the class-room and gymnasium for the old-time out-of-door life, and we shall be fortunate indeed

Art = feeling
Baldwin Dewey
James

if we effect this substitution with even a fair measure of success.

Coming to the domain of ethics, and calling to mind certain ugly facts in our social, political, and commercial life; remembering the failure of many homes to meet their responsibilities, —sometimes from ignorance, less often from heartlessness, sometimes from shiftlessness or shallowness, not infrequently from disorganization—one must recognize the tremendous and unjust responsibility put upon the school when it is expected to regulate the conduct of children whom no man can number, not alone while at school, but during holidays and vacations, at home and abroad.

It remains for me to suggest very briefly some of the ways in which the school makes this its most important contribution to the public weal. In regard to each I can offer but a word, and I mention them somewhat in the order of their importance. First, then, we have the influence exerted by school premises, however inexpensive, provided they are at all times and in all points scrupulously clean, neat, and orderly. This influence will be enhanced and can only be adequate when to the foregoing we add the element of beauty as supplied by well chosen and well-placed pictures, statuary, and whatever else will truly adorn. While such things are needed by all children, they are most essential in case of children who get them nowhere else. Here we come in contact with the educational use of imitation and the following quotation is timely:

> In so far as imitation is one of the agencies of mental development it is incumbent upon teachers and educational directors everywhere who desire to utilize every means that nature affords in their work to put the best models of every kind before growing children. These models may be material or the more potent ones of personality. Among the right material models into contact with which the school should bring the child may be mentioned a beautiful playground, an architecturally good as well as serviceable school building, well-lighted corridors, broad stairways, carefully ordered school-rooms, neat and clean texts, a reasonably high requirement of the quality of work done, and an atmosphere of agreeable and engrossing occupation, to breathe which cultivates the sense both of the reality and the winsomeness of living.

Every visitor to the schools of older lands must have observed one feature in which many of them present a strong contrast to American schools. I refer to the tablets, inscriptions, and memorials of various kinds which speak so impressively of the past life of the school, and of those once connected with it as pupils or teachers, of their subsequent achievements, often of their deaths, which so frequently illustrate the truth of Tennyson's lines,—

> Not once or twice in our rough island story
> The path of duty was the way to glory.

We have thought too little of such things, altho it may be pleaded that the meager span of our national life and the relative newness of the schools has made impossible the gathering of such memorials. As illustrations of what I say, let me quote first an inscription which may be read in ancient Winchester School. It embodies a school tradition which must appeal forcibly to succeeding generations of youth as they come within its venerable walls. In the Latin it runs, "Aut disce, aut discede, manet sors tertia caedi," which the Winchester boys with ready wit render "Work, walk, or be wapped!"

But far more lofty is the appeal made to Westminster boys by the inscription upon the monument which stands close by the school and the mighty abbey:—

TO THE MEMORY OF

THOSE EDUCATED AT WESTMINSTER SCHOOL

WHO DIED IN THE RUSSIAN AND INDIAN WARS,

1854–1859

ON THE FIELD OF BATTLE OR FROM WOUNDS OR SICKNESS

SOME IN EARLY YOUTH, SOME FULL OF YEARS AND HONORS,
BUT WHO ALIKE GAVE THEIR LIVES FOR THEIR COUNTRY,
THIS COLUMN WAS ERECTED BY THEIR OLD SCHOOL FELLOWS
IN TOKEN OF SORROW FOR THEIR LOSS, OF PRIDE IN THEIR VALOR, AND
IN FULL ASSURANCE THAT THE REMEMBRANCE OF THEIR HEROISM IN LIFE
AND DEATH WILL INSPIRE THEIR SUCCESSORS AT WESTMINSTER
WITH THE SAME COURAGE AND SELF-DEVOTION.

Secondly, I call attention to the influence exerted by the daily routine of the school. This involves constant practice of the school virtues, named by Dr. Harris, as regularity, punctuality, neatness, accuracy, silence, industry, obedience. It involves due regard for the rights of others, and thus makes necessary thoughtfulness and courtesy. It involves constant appeals to right motives, which are to influence the will, which in turn is to regulate the conduct. In the typical school of to-day, discipline seems to occupy a much less prominent place than in the schools of an earlier time, and yet never before were there so many well ordered schools. In such a school very little time is given to the imposition of pains and penalties. They are unnecessary because the traditional attitude of pupils toward teachers and tasks has undergone a complete change.

Examining the routine of a good school, we discover that its function is that of habituating its pupils thru endless repetition to right practices which presently become a second nature to them. Someone has said that nothing in education becomes valuable until it has assumed the form of habit. The wise teacher works in the light of this precept, and this explains his constant insistence on many matters whose importance he appreciates, which to those who lack his insight seem trifling. The evil of tardiness, for instance, is not that it necessitates the appearance of black marks on the school register, but that it is evidence of a failure to keep a business engagement. Not only does it diminish the working efficiency of the school, but it makes unreliable the pupil who practices it, and he must be saved from such evil result.

In the third place, if we wish to appreciate what the school does in the moral training of children, we must attend to the ethical as opposed to the purely intellectual results, which flow from certain studies of the curriculum, but which are produced in full measure only by teachers of breadth and insight. We may admit that such result is determined in a measure by the nature of the subject studied. Mathematics will tend to produce one result, natural science another, linguistics a third. While something depends on the subject-matter which is studied everything depends on the person who does the teaching. And so Emerson wrote to his daughter, "It matters little what your studies are, it all lies on who your teacher is."

In these later days the number of teachers steadily increases who are chiefly intent on ethical as opposed to intellectual results. Not that they lower in the least the standards in the latter realm. They expect their pupils to acquire quite as much knowledge and information as were ever acquired. They see to it that there is no lack of vigor and keenness in their intellectual training, but they seek something above and beyond both of these. As a concrete illustration of my meaning, let me choose the subject of history. If we ask why history should be studied, one reply, and a correct one, is that a knowledge of what history tells us is an essential element in preparation for the life of to-day. It must be admitted that a knowledge of what we may term the essentials of history is a valuable acquisition. Indeed, it may be affirmed that such knowledge must be placed nearly or quite first among the ends to be attained. A great mistake is made, however, and a great opportunity lost, if the teacher fails to make this first end—this knowledge result—a stepping-stone to something else of transcendent value. To know that Pizarro conquered Peru and Cortez, Mexico, to know that St. Augustine was settled in 1565 and Santa Fe in 1582; to know that Cavaliers came to Virginia and Puritans to Massachusetts, is important, but if the study of history is to be really fruitful, results of a very different kind must be sought and secured.

And so the teacher of insight knows that here he has an opportunity, only equalled in the domain of literature, for exerting a great and wonderful influence upon his pupils—an influence which will give them not only an immediate but a lasting interest in the subject matter of history; which will, thru the potent force of example, lead them to love the right and hate the wrong; which will arouse worthy ideals and awaken laudable ambitions. The teacher possessing this insight is likely to be a person of wide reading, whereby he has accumulated abundant material for use in appealing to his boys and girls. He knows full well also the purpose which he has in mind, and while he says no word of this in the class-room, he loses no opportunity to bring out from his treasure-house the choice bits which appeal to ingenuous youth. Here again example is better than precept, and I shall best make my meaning clear if I cite illustrations rising from those of lighter to those of a serious vein, but each a veritable nugget. To Booker Washington I am indebted for this:—

> Once there was a woodchuck . . . Now woodchucks can't climb trees. Well, this woodchuck was chased by a dog and came to a tree. He knew that if he could get up this tree the dog could not catch him. Now woodchucks can't climb trees, but this one had to, so he did.

Reading the autobiography of the late Senator Hoar one comes upon the inscription prepared by him for the tablet placed in the Vice-President's room in the Capitol at Washington in memory of Henry Wilson:—

IN THIS ROOM

HENRY WILSON

VICE-PRESIDENT OF THE UNITED STATES
AND A SENATOR FOR EIGHTEEN YEARS,

DIED NOVEMBER 22, 1875.

SON OF A FARM LABORER, NEVER AT SCHOOL
MORE THAN TWELVE MONTHS,
IN YOUTH A JOURNEYMAN SHOEMAKER,
HE RAISED HIMSELF TO THE HIGH PLACES OF
FAME, HONOR, AND POWER AND BY UNWEARIED STUDY
MADE HIMSELF AN AUTHORITY IN THE
HISTORY OF HIS COUNTRY AND OF LIBERTY
AND AN ELOQUENT PUBLIC SPEAKER
TO WHOM SENATE AND PEOPLE EAGERLY LISTENED.
HE DEALT WITH AND UNCONTROLLED
VAST PUBLIC EXPENDITURE DURING A GREAT
CIVIL WAR, YET LIVED AND DIED POOR,
AND LEFT TO HIS GRATEFUL COUNTRYMEN THE
MEMORY OF AN HONORABLE PUBLIC SERVICE,
AND A GOOD NAME FAR BETTER THAN RICHES.

Or suppose we choose from the utterances of John A. Andrew, our great War Governor. What finer lesson in toleration than is taught by his words occasioned by some disagreement in the Church of the Disciples:—

> Brethren, I do not believe in the principle of come-outeris. I am not a come-outer. I am a stay-iner. I shall not leave this church because the majority may differ from me on this or other questions. You may, indeed, turn me out; but you cannot make me go out of my own accord. If you turn me out of your meetings I will stand on the outside and look in thru the window, and see you. If I cannot do this, I will come the next day and sit in the place where you have been, and commune with you so. I cannot be excommunicated, for I shall continue thus always in your communion.

What finer lesson in fearless devotion to principle than is taught by his utterances on the political platform in the stormy days of '59 and '60:—

> I pause not now to consider, because it is wholly outside the duty of this assembly to-night, whether the enterprise of John Brown and his associates in Virginia was wise or foolish, right or wrong; I only know that, whether the enterprise itself was the one or the other, John Brown himself is right.
>
> I know not what record of sin awaits me in the other world, but this I know, that I was never mean enough to despise any man because he was ignorant, or because he was poor, or because he was black.

As a final illustration, let me cite words found in the private journal of Lord Dalhousie, one of the truly great men sent out by England to govern her mighty Indian realm:—

> To fear God, and to have no other fear, is a maxim of religion, but the truth of it and the wisdom of it are proved day by day in politics.

How many politicians in Massachusetts or elsewhere have made this discovery?

I need scarcely say that none of my illustrations will the schoolboy find in his text-book. But these, or a multitude of others equally apt, his teacher will find in his reading. It is his privilege to present such gems to the ingenuous minds and hearts of his boys and girls in full assurance that they will respond with glad eagerness. And so it is that many a teacher of to-day is making conscious use of those studies of the curriculum which are best adapted to serve as potent means in the moral training of youth.

Finally, I come to the influence which transcends all other influences in the moral training afforded by the school, viz., the personality of the teacher. And yet transcendent as is this influence, we so well understand it that it does not call for many words. Too often it seems to be completely forgotten, as witness the carelessness or recklessness displayed in the selection of teachers, or again, as witness the tremendous contrast between the exalted estimate we put upon the vocation of the teachers and the meagerness of the compensation which we pay them. But we do not really forget. In spite of the vicious influences—personal, social, political, or sectarian, which too often control appointments; in spite of the lack of honor paid teachers, in spite of beggarly salaries, the world knows that the one thing of supremest consequence in every school is the personality of the teachers.

In its great days Rugby School and Thomas Arnold were synonymous; so were Williams College and Mark Hopkins, Brown University and Francis Wayland, Union College and Eliphalet Nott, Hampton Institute and Samuel Chapman Armstrong, Mount Holyoke Seminary and Mary Lyon. Not because of their learning, not because of their technical skill, does the world honor these worthies and assign them the very highest position in the hierarchy of teachers, but because each entered as a living, inspiring force into the very beings of the students of their day. What such men and women have done in a great way, every teacher of real worth does in his own lesser way, and in this fact is to be found the potency of a good school as an effective agency in the moral training of children.

I began the discussion of this topic by remarking upon the general failure to appreciate this function of the school and the equally general failure to place a proper valuation on the services of teachers in whom the function is embodied. Both are clear to the man of insight, and this may be illustrated by quoting the eloquent words of Professor Davidson:—

> If any enthusiastic believer in the power of education desires to fortify his cause by means of a brilliant example, he will find none superior to Epaminondas; for there can hardly be any question that it was the earnest, sympathetic, religious, and moral Pythagorean training which he received from the aged Lysis, whom he treated as a father, that made him what he was, and enabled him to do what he did,—which was nothing less than to place Thebes at the head of Greece. Thebes rose and fell with Epaminondas. But that was not all. It was the example of Epaminondas that kindled the ambition of Philip of Macedon, who was educated under his eye, and of his far more famous son, Alexander, who made all Greece a province of his empire. Pythagoras, Lysis, Epaminondas, Philip, Alexander—in five brief generations an earnest teacher conquers a world.

In what has been said as to moral training it will be observed that nothing has been said of religion, and there are many who believe that no training in morals can be adequate unless it be founded upon religion. This omission has been intentional, for whatever be the truth of the matter, it seems clear that nothing in the way of dogmatic religious instruction can be tolerated in the free American public school. Nor need we be disturbed because of this, for if we may trust the testimony of acute observers, the instruction in religion which forms so prominent a feature of the curriculum of many trans-Atlantic schools is actually subversive of the very ends it is designed to secure. While then, with us, instruction in religion must be relegated to the home, the church, and the Sunday School, the spirit of true religion may and should dominate every school. As Dr. White has said, "At least three avenues are open for the introduction of religious ideas and sanctions into all our schools. They are sacred song, the literature of Christendom, and, best of all, faithful and fearless Christian teachers, the living epistles of the truth. Against these there is no law."

Brookline, Mass. GEORGE I. ALDRICH.

[From Report of 1906.]

Pedagogic Discussion

[For discussion in connection with the study of Chas. B. Gilbert's article on Arithmetic, published in the present number.]

Methods of Teaching Arithmetic*

AS far back as October, 1892, I advocated in the *Educational Review* a system of implanting elementary mathematical ideas in the minds of pupils, with especial reference to the fundamental conceptions of number and quantity. While eminent masters in education had repeatedly pointed out the advantages to be gained by teaching arithmetic in a concrete form, their views had not up to that time taken effective practical form, at least in our own country. The purpose of my paper was to set forth a system of visible and graphical representation of arithmetical operations, illustrated by appropriate exercises, by which the advantage of apprehending mathematical ideas in a concrete form should be gained. I am not aware that this utterance excited any attention at the time, nor do I know whether it was a factor in the recent tendency of arithmetical teaching in the direction which it advocated. However this may be, the whole trend of recent experience and discussion among practical teachers is in the direction of the ideas advocated in the paper referred to; and a system practically identical with the one there found is now embodied in several recent arithmetics, even to the extent of proposing problems and exercises almost identical with those suggested in the paper. This fact encourages me to present a more complete development of the results of thought and observation during the thirteen years which have elapsed since my former utterance. To do this completely it is necessary to commence at the foundation and inquire into the main purposes which we should have in view in arithmetical teaching.

Without going into details, a very little thought will, I think, make it clear that the main end of mathematical teaching—we might say of teaching generally—is to store the mind with clear conceptions of things and their relations. In the case of elementary arithmetic, the things we first deal with are numbers. It follows that a clear conception of numbers and their relations is the end toward which our teaching should be directed. I think every reader who has carefully studied the mind of the apparently dull pupil will agree that the real difficulty is to give him an insight into the nature of the problem he is to solve. He may be able to repeat the words; but you find that they do not make a sufficiently definite impression on his mind. Clear and accurate conceptions of the relations of numbers are therefore to be generated.

---

*Read before the Department of Superintendence of the National Educational Association in 1906.

The first great object in training the growing child in arithmetic is to store his mind with accurate conceptions of numbers, magnitudes, and their mutual relations, which he shall be able to apply with readiness in any actual case that may arise.

Granting this, the next question in order is that of method. Here physiology can supply us with a guiding rule. However abstract may be the ideas which we wish to implant, they must originate in sensible objects. But they must not stop there, because generalization, conscious or unconscious, is to be aimed at from the beginning. Let me illustrate my meaning by taking the number 10 as an example. I think psychologists will agree that there is no such thing in the human mind as a conception of the number 10 otherwise than as a quality characterizing 10 distinct objects. A written or verbal symbol may be used for the number, but this is not a conception of it. The point is, that the word or symbol being pronounced or shown, the pupil should at once conceive of ten objects as distinct from either 9 or 11, and should be able to handle that conception in all the ways that it can be handled.

Here, there is an obvious advantage in selecting such objects as have the least number of qualities to distract the attention from the fundamental idea of number. Hence, I prefer that the counting should be made upon small dots, circles, or other objects with few qualities than upon the more interesting objects which are met with in every-day life. In this suggestion I may seem to run counter to views which are entertained by very high authorities in education. There is, I admit, a very strong argument in favor of the view that the principles of arithmetic are best mastered when the child is taught to consider them as growing out of the problems that actually confront him in his daily walks. I fully agree that the practice thus suggested is one that should be carried out, but we must not depend wholly upon it. Perhaps I am a little old-fashioned. I want some drill in thinking of numbers and their relations as dissociated from the actual objects concerned. Just as rapidly as this power is attained in each and every branch, I am willing to see the interesting substituted for the instructive.

The idea of arranging subjects in order and completing one before passing to another is plausible. But experience shows that it has its limitations. The great principle which experience especially enforces is the educational value of frequent reiteration of very short and easy lessons. This is one of the main features of the system I am trying to develop.

Now, as my object is a purely practical one, it is necessary to have some idea, however brief, of the method by which the purpose in view can be most readily attained. The system I advocate may be called *visible arithmetic*. Taking up subjects in much the order of the traditional arithmetic, the first would be Numeration. Visible numeration consists in counting and arranging objects in tens and in powers of ten. At the earliest age where simple arithmetic can be commenced, whether in the kindergarten or the primary class in school, I should teach the child to count and arrange things in tens; then to arrange real or imaginary tens in hundreds, and so on. In accordance with the general principle which I have laid down, I would begin with rows, each comprising ten dots, or kernels of corn, and teach the counting thru ten such rows, making one hundred in all. We could then imagine the results of laying successive

100's in flat layers on top of each other, thus getting the idea of multiples of 100 up to 1,000.

It would be psychologically interesting to see whether, in this way, we could plant in the mind what the psychologists call a "number-form" in a better shape than it commonly takes. I suppose we all have vaguely in mind from infancy a certain arrangement in a series of small numbers up to, say, 100. It would be interesting to know whether a more rational arrangement would be gained by this process, but this is not important for teaching purposes.

Next would come the process of adding and substracting grains of corn, or dots or little O's made on the slate. Methods of doing this are so familiar that I need not dwell upon them. The practice of multiplication and division in this way does not seem to need much exposition. We can repeat a row of any number of dots as often as we please, and count the product. We can divide any number into groups of any smaller number and find the quotient and remainder. All these exercises on the four rules of arithmetic need not take much time. My impression is that you will find, after a very little showing, that the child is able to perform the fundamental rules upon collections of grains of corn, or dots without devoting much or long continued efforts to the process.

The next step would be to extend the operations to continuous quantity as represented by lines and areas on paper or on the blackboard. The addition of lines consists in placing them, or lines equal to them, end to end, thus obtaining a line equal to their sum. Subtraction consists in cutting off from the longer line a length equal to the shorter one. Multiplication by a factor consists in adding together equal lines to a number represented by the factor. Division takes a twofold form. We may either divide a line into a given number of equal parts, thus obtaining a certain length as a quotient, or we may find how many times one line is contained in another, thus obtaining a pure number, or ratio, as the quotient.

Please understand that this system of visible arithmet is not a substitute for ordinary arithmetic, but an auxiliary to it. Whether it is advisable to master it completely before beginning regular work with figures, or to carry on the two simultaneously, only experience can show.

However this may be, in teaching written arithmetic I would have the pupil make his own addition, subtraction, and multiplication tables, by the aid of countable things. Taking groups of six things—dots or grains of corn—the pupil finds the successive products of six by different factors and writes them down in order for himself. He thus knows exactly what the multiplication table means. The treatment of fractions in a visible way by dividing lines into parts is an extension of multiplication and division.

The next subject in order would be ratio and proportion. On my plan the pupil reaches the first conceptions of this subject thru the eye by drawing a pair of lines of unequal length and then other pairs, shorter or longer, in the same ratio to each other. In this way he will see the equality of ratios to be independent of the special lengths of the lines. He can then be gradually exercised in forming for himself an idea of what a ratio means, or how equality of ratios is to be determined by multiplication or division. I would not have measurement with a rule applied, but only eye estimates. This, I may remark, is the general system by which I think we could begin in all cases. The reason for it is that in making eye estimates we depend more completely upon the eye conceptions than when we measure; but as soon as the conception is gained, we may proceed to measurement. Having got the idea of a proportion and the geometric mean, all this can be done without using figures or numbers. When the conception is well implanted, then proceed to numbers.

In connection with proportion would come graphical representation of all the quantities which enter into arithmetical problems. Take, as an example, questions of days' work in plowing a field. We draw a short vertical line to represent a man, or his power. From this line as a base we draw a horizontal rectangle to represent the amount of land which the one man can plow in a day of ten hours. If we have several men, we add into one the lines representing them, and combine all the rectangles into one. Then we extend these rectangles to represent the days. To introduce the idea of compound proportion, we suppose a day of eight hours instead of ten hours making a rectangle shorter in proportion. I consider any problem in compound proportion solved when, and only when, the pupil is able to represent it graphically on this system. I am sure this process would be more interesting than that requiring the use of numbers.

The precise purpose of this course in visible arithmetic is so far from familiar that further enforcement of it may be necessary to its complete apprehension. It must be especially understood that exercises in formal reasoning do not enter into this plan. A power of visualization and giving a concrete embodiment to the abstract ideas are the fundamental points aimed at. If I should express the desire to have a pupil trained from the beginning in the mode of thought of the professed mathematician, I might meet the reply that this was expecting too much of the childish mind. Allow me, therefore, to put the requirement into a slightly different form. I wish the pupil trained from the beginning in the use of those helps to thought which the advanced mathematician finds necessary to his conceptions of the relations of quantities. If a mathematician has no clear conception of an abstract quantity how can we expect a child to have it? The mathematician conceives quantities by geometrical forms and the movements of imaginary visible points. Let us then train the child to represent the simple quantities he deals with by simple auxiliaries of the same kind, adapted to the state of his mind and to his special problems. What I wish him to use is not merely a tool, but a necessary help to thought.

Altho I have spoken of these graphic constructions as merely an auxiliary, I would, after denominate numbers are disposed of, be satisfied with the graphic representation of all solutions required. After this point, I would require very little numerical solution of problems, being satisfied when the pupil is able to construct a graphic representation of the solution. When he can draw proportional lines, explain discount by cutting off and adding fractions of a line to the line itself, and in general show that he can form a clear conception of the practical problems of arithmetic, I should consider that he knew enough about it, so far as mere numbers are concerned. Everything beyond should be treated by algebraic methods.

Thus far, I have treated only of one main object of arithmetical teaching. But there is another purpose of a different kind, and that is facility in the use of numbers. The pupil must not only know the meaning of multiplication and division, and understand when each is required, but he must be able to cipher rapidly and correctly. I think this end is best gained by short and frequent daily practice in the routine operations of the four fundamental rules, quite apart from the solution of problems. I would have something analogous to a daily five-minute run inthe open air. The reiteration of simple problems after the pupil sees clearly how to conceive them is a waste of time. But this is not so with the exercises designed to secure facility. Leaving details to the teacher I would outline some such plan as the following:

Let an entire class devote a few minutes every morning to reading or repeating aloud in chorus the addition, subtraction, or multiplication table until it is ascertained that the large majority of the class has them well by heart. I should not make it a point to have them repeat the tables from memory alone, because I think the result is equally well attained by simply reading aloud. Another exercise would be that of adding columns of figures, following the method of the bank clerk, or of the astronomical computer. It would facilitate this to have the exercises printed on sheets beforehand. Twelve lines of figures would be a good number. The earlier exercises may begin with three in a line; when these are easily done, add columns of thousands, then tens of thousands, and so on. Do the same thing with exercises in multiplication and division. These may seem rather dull exercises, but we can easily add an element of interest by choosing some condiment of which a very little will suffice to flavor an otherwise long and tedious course. The mere act of repeating in chorus will give interest to the exercises. In addition, an element of interest will be given by noting from day to day the gradually diminishing time in which each pupil can complete his exercise and prove its correctness.

Thus far I have spoken only of methods of teaching. But I believe that, if the system which I advocate is intelligently pursued, it will be found practicable to greatly curtail the time spent in simple arithmetic, and thus rearrange the curriculum with the view of disposing of the subject of arithmetic and passing on to algebraic and geometric methods at a much earlier age than at present. In making these changes we may be running counter to the ideas of the general public. When it is proposed to omit commercial and so-called advanced arithmetic from the school course, the reply will be that we are considering only the requirements of pupils preparing for a college course, and that business and commercial arithmetic is a prime necessity with the masses. Now, the experience of directors in our great enterprises shows that the best business mathematician is not the one who has taken a course in commercial arithmetic, but who has the best understanding of numbers and quantity in general, obtained by the more advanced courses of a mathematical character. A problem of practical business is best taken up by one who understands it. On the purely practical side that understanding can be better gained in one day by actual experience than by any amount of arithmetic in a course subject to all the drawbacks of being treated as an abstraction.

We should also try to dispel the current notion that the use of algebraic symbols belongs to a more advanced stage of study than arithmetic. We have advanced a little in the right direction since the time when the signs + and — were considered as belonging only to algebra, and therefore not used in arithmetic. I trust that we shall go further and not only introduce symbolic operations, but the simpler literal symbols at a very elementary stage in the course. Careful examination will show that in its simplest form, algebraic operations are even simpler than arithmetical ones.

Having suggested all these innovations, allow me to sum up in briefest compass the practical conclusions which I draw from a survey of the field:

I. I do not propose that we shall try to train a pupil in abstract mathematical reasoning until he reaches the stage where pure geometry can be advantageously taken up. But, from the very beginning, he should be trained in the faculty of mental insight. This can be done by problems like this, to be answered by thought without making a drawing. Of three houses, A, B, and C, B is 100 meters north of A and C is 100 meters west of B. What is the direction of C from A, and about what would you suppose its distance to be?

II. I regard time spent in the school-room poring over problems and trying, perhaps vainly, to see how they are to be solved, as time wasted. Much waste in this way is indeed unavoidable, but our policy should be to reduce it to a minimum by explaining the problem whenever the pupil does not readily see into it for himself.

III. Of course we should train the mind in seeing how to attack a problem. The objection may be made that whenever we help the pupil in this respect, we diminish his power of helping himself. I admit this to a certain extent, but my solution is that we should devise such problems that the course of thought they require can be seen without spending time in vain efforts.

IV. I have found in my own experience that words are as well and more easily memorized by repeated readings than by the same amount of repetition from memory. If this principle is correct, then we lose nothing by having a multiplication table before the pupil every time he repeats it, so that he shall read instead of memorize it.

V. The plausible system of learning one thing thoroly before proceeding to another, and taking things up in their logical order only, should be abandoned. Let us train the pupil as rapidly as possible in the higher forms of thought and not be afraid of his having a little smattering of advanced subjects before the yare reached in regular course. Let us remember that thoroness of understanding is a slow growth, in which unconscious cerebration plays an important part, and leave it to be slowly acquired.

Let us promote the development of higher methods in the earlier stages by introducing algebraic operations immediately after the four fundamental rules.

VI. Separate the actual exercises for acquiring facility in arithmetical operations from the solving of arithmetical problems. If I am right, it will be more conducive to progress to be satisfied with the graphic representations of problems, without the arithmetical operations of solution, than by actually going over the solution itself.

VII. If I am not straying too far from my theme, I may devote one moment to the extension of the ideas I have advocated to the mensurational side of geometry and physics. As a part of the arithmetical course, let us teach geometrical conceptions, the aim being a correct apprehension of lines, lengths, angles, areas, and volumes as they actually exist in the objects around us, and are to be conceived in thought when these objects are out of sight. Valuable exercises in this respect will be endeavors to estimate a result in advance of calculating it. If a freight car is the subject of measurement, either in thought, or by a picture, let the pupils form the best judgment they can as to the number of cubic meters or of tons of water the car will hold before making the computation. Practice in estimating lengths, angles, and magnitudes generally, by the eye, should be part of the elementary course.

I may conclude with a brief statement of what we may hope for by the system, of which the general principles have been outlined. It is, in the first place, the more rapid command of the nature of all those problems which are to be solved by numbers and in the second place facility in performing the necessary operations. To put the system into successful operation requires a well-chosen collection of problems, explanations, and exercises quite different from those with which we are familiar. It also requires, both in the designer of the exercises and in the teacher, a clear idea of the end to be kept in view, and of the best means of attaining it in each special case.

Washington, D. C. SIMON NEWCOMB.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

CURRENT TOPICS.

1. Give an argument either for or against one of the following bills which have been introduced into Congress during the present session: (*a*) the Ship Subsidy Bill, (*b*) the Philippine Tariff Bill, (*c*) the Statehood Bill.

2. Mention three recommendations made by the Insurance Investigating Committee in its report to the Legislature.

3. Give (*a*) a brief description of the new floating dry dock "Dewey," (*b*) a short account of the voyage of the "Dewey,"

Or

Mention recent manifestations of interest in the old frigate Constitution and account for the popular interest in this frigate.

4. President Roosevelt has recommended a lock canal in preference to a sea-level canal at Panama; mention three advantages of the former over the latter.

5. Give the object and the result of the recent conference at Algeciras and name three of the nations represented at this conference.

6. Give the name of the newly elected President of France and tell how the President is elected in that country.

7. Give an account of the recent British parliamentary elections.

8. Compare present foreign emigration to the United States with such emigration before the Civil War, as to (*a*) number and nationality of the emigrants, (*b*) effect of the emigration on this country.

9. Write brief biographic notes on three of the following: Marshall Field, Joseph Wheeler, King Christian IX, William R. Harper, John M. Schofield, Susan B. Anthony.

10. Mention three *important* bills introduced into the New York Legislature during the session of 1906 and state which, if any, of these bills became laws.

ANSWERS.

1. (*a*) A great portion of American ocean commerce is carried on in foreign ships, and the subsidy is necessary that American shipping may have a part in this traffic. The bill is objected to by many as unnecessary class legislation.

(*b*) The Filipinos claim that they should not be treated as a foreign nation in regard to tariff duties and that they should be relieved from heavy duties. The sugar and tobacco interests oppose the bill on the ground that their profits would be lessened by competition.

(*c*) Oklahoma and Indian Territory should be admitted since they have the requisite population, but New Mexico and Arizona should not be admitted, since they are thinly populated and Arizona objects to being joined with New Mexico.

2. That deferred dividends be abolished, that investments in stocks be prohibited, and that new insurance be restricted to 150 million a year.

3. It is the largest dry dock that was ever constructed and is now being towed to the Philippines by way of the Suez Canal.

Attention has been called to the frigate Constitution by an announcement that it would be used by the National Government as a target. The frigate is of historic interest, since it is the vessel that won the victory over the Guerriere, in the Revolutionary War.

4. Less time to construct; less cost; greater control.

5. The control of Morocco is in dispute between Germany and France. A police establishment, officered by France and Spain, is established and placed under the immediate control of a neutral inspector. United States, England, and Germany were three of the nations represented.

6. M. Fallieres. Elected by the national legislature.

7. Balfour was forced to resign on December 5 and Sir Henry Campbell-Bannerman was made premier. The recent election sustained the new ministry on the free trade issue.

8. (*a*) The number has increased from about 150,000 annually to more than a million annually. Then the emigrants were mostly from Ireland, Great Britain, and Northwestern Continental Europe, but now they come in great numbers from Italy, Poland, Hungary, Bohemia, and Russia. (*b*) Without proper restrictions they are liable to become a menace to our social and political institutions.

9. Marshall Field, a merchant prince of Chicago, died in that city January last. Joseph Wheeler, a former confederate general, afterwards serving in the Spanish-American war, died recently. King Christian IX, who died Jan. 29, was noted for the number of his children who are on thrones. William R. Harper was President of the University of Chicago at the time of his death Jan. 16. John M. Schofield, lieutenant general in the United States Army, died last month. Susan B. Anthony, a noted advocate of woman suffrage, died at Rochester, N. Y., March 13.

10. The insurance bills recommended by the insurance investigating committee; the publicity bill requiring the publication of expenses by political committees; appropriation for plans and for purchase of a site for a new state library and education building.

The insurance bills have become laws.

DRAWING

1. Give a color scheme for the walls, ceiling, and shades of a room in which the woodwork is dark cherry or mahogany.

2. State three principles of linear perspective and illustrate them in a free-hand sketch, one of the features of which is a building.

3. How does distance affect the apparent color in a landscape? Compare the apparent colors of the foreground, middle distance, and distance.

4. Construct a rectangle with sides 3" and 2", and within it inscribe a rhombus. Use compasses and show all construction lines.

5–6. Make a working drawing of a teacup with handle (three views), showing good shape and proportion. Scale, full size.

7. Draw the pattern of a cylindric tin box, diameter 2½", height 1¾".

8. Represent in a drawing two kinds of trees with or without foliage. Name the trees represented. [Use pencil or brush.]

9. Make a decorative design suitable for the cup mentioned in questions 5–6.

10. Sketch a group of three vegetables.

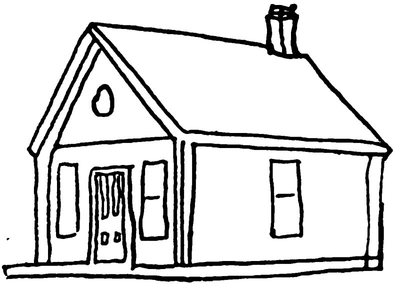
ANSWERS.

1. A good color for the walls would be an olive green; the ceiling a light tint of the green and the shades a tint of the green but darker than the ceiling.

2. Lines parallel to the picture plane retain their direction in perspective. Hence horizontal lines remain horizontal and vertical lines remain vertical.

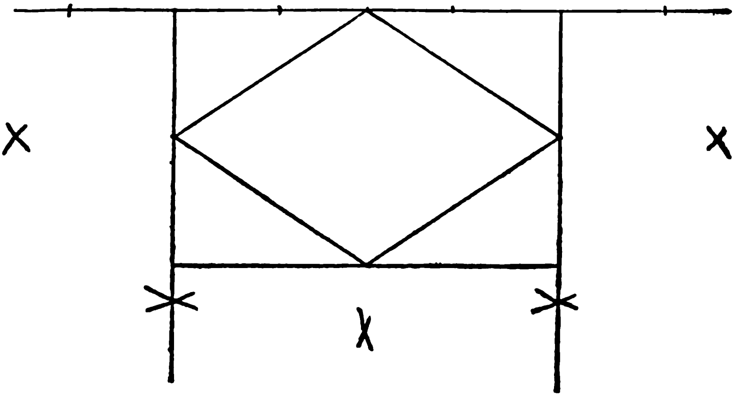
Lines not parallel to the picture plane appear to converge as they recede from the eye.

All horizontal lines not parallel to the picture plane vanish at the level of the eye. Hence those below the eye slant upward and those above the eye slant downward.

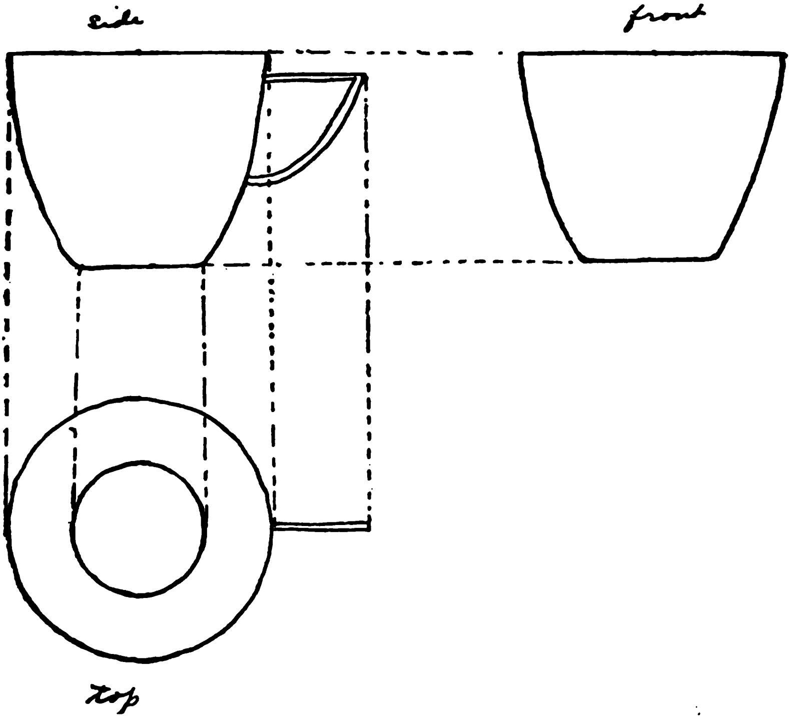


3. Distance neutralizes color. A green in the foreground appears a greenish gray in the middle distance and a blueish gray in the distance.

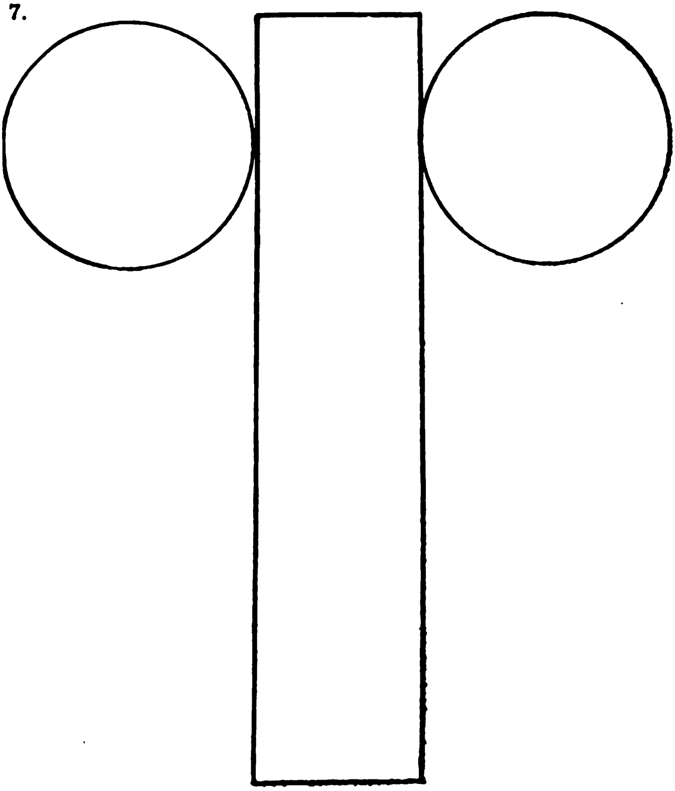
4.



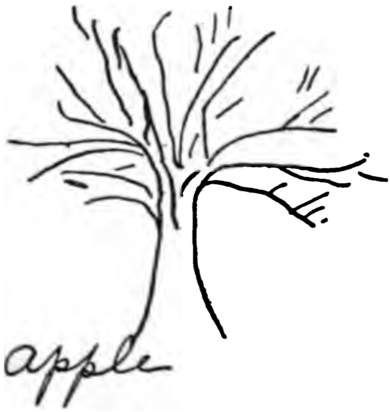
5-6.



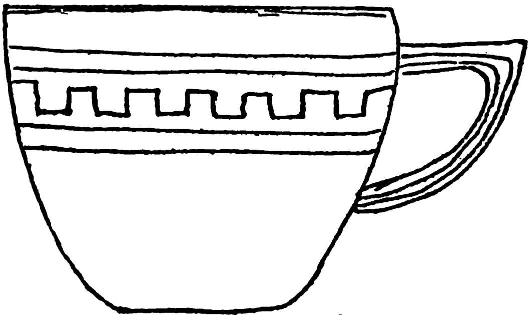
7.



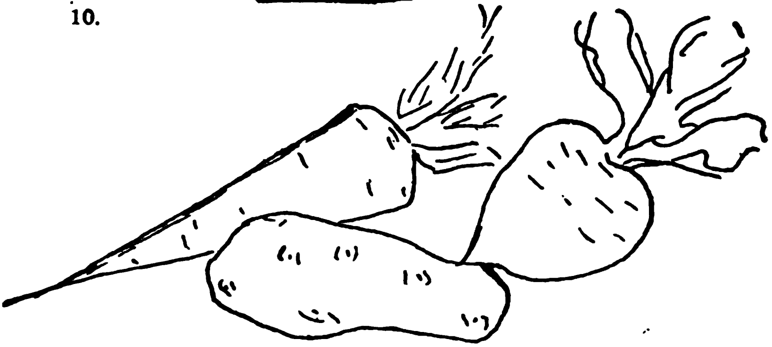
8.



9



10.



GRAMMAR.

1. But it *may be said* by those who do not object to the general
2 spirit of *these* remarks, that, as it is impossible for the poet *to pro-*
3 *duce* upon all occasions *language as* exquisitely *fitted* for the passion
4 as *that* which the real passion *itself suggests*, it is proper that he
5 *should consider himself* as in the situation of a translator, who deems
6 himself *justified* when he substitutes excellences of another kind for
7 those which are unattainable by him, and endeavors occasionally *to*
8 *surpass his* original, in order *to make* some amends for the general
9 inferiority to which he feels that he must submit. But this would
10 be to encourage idleness and unmanly despair. Further, it is the
11 language of men who speak of *what* they *do* not *understand;* who talk
12 of poetry as of a matter of amusement and idle pleasure; who *will*
13 *converse* with us as *gravely about* a taste for poetry, as they express it,
14 as if it *were* a thing as indifferent as a *taste for* rope dancing.—
15 *Wordsworth.*

The first eight questions refer to the above selection.

1. Select five adjective clauses and give the syntax of each.

2. Select four adverbial clauses and one objective clause. Give the syntax of each clause selected.

3. Give the part of speech and the syntax of (*a*) *these* (line 2), (*b*) the first *as* (line 3), (*c*) *his* (line 8), (*d*) *gravely* (line 13), (*e*) *about* (line 13).

4. Give the syntax of (*a*) *to produce* (lines 2, 3), (*b*) *fitted* (line 3), (*c*) *justified* (line 6), (*d*) *to surpass* (lines 7, 8), (*e*) *to make* (line 8).

5. Give the part of speech and the syntax of (*a*) *language* (line 3), (*b*) *that* (line 4), (*c*) *itself* (line 4), (*d*) *himself* (line 5), (*e*) *taste* (line 14).

6. State whether each of the following verbs is transitive or intransitive and give the voice, mode, and tense of each: (*a*) *may be said* (line 1), (*b*) *suggests* (line 4), (*c*) *should consider* (line 5), (*d*) *will converse* (lines 12, 13), (*e*) *were* (line 13).

7. Parse (*a*) *what* (line 11), (*b*) *do understand* (line 11).

8. What two parts of speech are used to connect clauses? Select and classify five such connectives, not more than three of which are in the same class.

9. Decline (*a*) *it*, (*b*) *fly*.

In what three different ways are adjectives compared? Give an example of each.

10. Define (*a*) etymology, (*b*) abstract noun, (*c*) nominative absolute.

ANSWERS.

1. *Who do object*, modifies *those; passion suggests which*, modifies *that; who deems*, modifies *translator; which are unattainable*, modifies *those who speaks*, modifies *men*.

2. *It is impossible*, modifies *is proper; that* (*is fitted*), modifies *fitted; he substitutes*, modifies *deems justified; it were thing*, modifies *will converse*. Noun clause *he must submit*, object of *feels*.

3. (*a*) Pronominal adjective, modifies *remarks;* (*b*) adverb, modifies *exquisitively;* (*c*) adjective pronoun, modifies *original;* (*d*) adverb, modifies *will converse;* (*e*) preposition, shows the relation between its object *taste* and *will converse*.

4. (*a*) modifies *impossible;* (*b*) modifies *language;* (*c*) factitive object of deems; (*d*) object of *endeavors;* (*e*) modifies *surpass*.

5. (*a*) Noun, object of *to produce;* (*b*) demonstrative pronoun, subject of *is fitted* (understood); (*c*) compound personal pronoun used as an intensive appositive of *passion;* (*d*) compound personal pronoun, reflex object of *consider;* (*e*) noun, nominative case, subject of *in different* (understood).

6. (*a*) Transitive, passive, potential, present; (*b*) transitive, active, indicative, present; (*c*) transitive, active, potential, past; (*d*) transitive, active indicative future; (*e*) no voice, subjunctive past.

7. (*a*) Compound relative pronoun; (*b*) irregular transitive verb, active, indicative, present, agreeing with its subject *they* in third, plural.

8. Conjunctions and relative pronouns. Conjunctions: *that, and.* Relative pronouns: *who, which, what.*

9. (*a*) Sing. *it, its, it;* plu. *they, their, them,* (*b*) Sing. *fly, fly's, fly;* plu., *flies, flies.' flies.* (*c*) (1) By endings. Ex. *small, smaller, smallest.* (2) By additional words. Ex. *famous, more famous, most famous.* (3) By differnt words. Ex. *bad, worse, worst.*

10. (*a*) Etymology is that part of grammar which treats of the classification, inflection, and formation of words, (*b*) an abstract noun is the name of a quality or attribute considered apart from its object, (*c*) a noun or a pronoun limited by a participle, and not in grammatical relation with any other word in a sentence, is in the nominative absolute.

"The book that makes teaching easier for you."

Management
and Methods.

: : : : By THOMAS E. SANDERS : : : :

We are glad to announce that we have just secured the publishing rights of Management and Methods, by Thomas E. Sanders. This book came from press only a few months ago and has met with splendid sales. It is plain, practical, pointed and pedagogically sound. The author speaks from a wide experience. He hits the point on every topic. He discusses the problems of school management and methods of teaching from the standpoint of the great mass of teachers—those teaching in the rural and village schools. It is in reality what one teacher declared it to be, "*the book that makes teaching easier for you.*"

For State or County Reading Circles, the teachers' institute or round table, or for private reading or study, it will give satisfaction.

312 pages. Cloth: $1.00 postpaid.

A. S. BARNES & COMPANY

11-15 East 24th Street - - New York

An indispensable book for every teacher

THE

National Question Book

Revised and Enlarged

: : By EDWARD R. SHAW : :

This is the best question book for teachers and those preparing to teach, ever published.

It has just been revised and brought up-to-date in a new and enlarged edition. It is comprehensive and practical. It reviews every subject ordinarily taught in the schools from the elementary through the high school. Each subject is taken up in the simplest phases and carried to the highest point until the entire ground has been covered. It is concise. There are no catch questions. It is a book for serious study. For review, for examination, and for study of the subjects included in its scope, Shaw's Question Book offers the best help available.

500 pages. 12mo. Cloth. $1.75.

SPECIAL OFFER: The National Question Book and Educational Foundations, one year - - $2.50

A. S. Barnes & Company

Elizabeth, N. J. : 11-15 East 24th St., New York

Educational Foundations

NOVEMBER
1906

DEPARTMENT OF
EDUCATION.
RECEIVED
NOV 6 – 1906
LELAND STANFOR
JUNIOR UNIV[illegible]

VOL. XVIII
NO. 3

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY
ELIZABETH, N. J. [illegible] Post Office at Elizabeth, N. J. NEW YORK CITY

[illegible] 1906, by A. S. Barnes & Company, New York

Contents for November, 1906

Informal Teaching of Religion and Morals in Common Schools. Geo. H. Martin - - - 161

EDUCATIONAL CLASSICS

Ruskin on Education - - - - - - 164

Spontaneous Attention. T. Ribot - - - - 169

The Autobiography of a Teacher. C. Hanford Henderson - - - - - - - - 174

The Rise of the United States. Whitelaw Reid - - 187

The High School of the Future. Thomas M. Balliet 209

PEDAGOGIC DISCUSSION

A Shorter School Day. Leonard Herbert Campbell 217

College Entrance Requirements in Modern Language. Carl F. Kayser - - - - - - 224

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to June inclusive, at [illegible] a year and is sent to its subscribers regularly until ordered to be discontinued and arrears paid for in full. We also publish The School Journal, weekly, [illegible] a year; Teachers Magazine, monthly, [illegible] a year, and Our Times, weekly, [illegible] a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly 500 standard Teachers' Books and Aids; also Recitation and Dialog books, Blackboard Stencils, Teachers' Aids, etc.

All requests for catalogs, orders for books, etc., should be sent to

A. S. BARNES & COMPANY

EDUCATIONAL DEPARTMENT

11-15 East 24th Street NEW YORK

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII NOVEMBER, 1906 No. 3

Informal Teaching of Religion and Morals in Common Schools

[Paper read at Congress on Religious Education.]

I SHALL use the time allotted to me in presenting the result of a recent experiment.

It occurred to me some time ago to inquire whether the pupils in our schools, without formal instruction, having learned no precepts, had from the informal, occasional teaching in the schools, from their own thinking, and under the influence of their homes, acquired any conception of moral obligations which they could express in words if occasion arose for them to do so.

Accordingly, I asked the principals of several grammar schools to obtain for me papers from the members of their highest class, written impromptu on the topics: Our duties to our families; our duties to our city;—half of the class writing upon each. This was done, and they were sent to me.

The papers treating of the family affirm moral obligations not only in a broad way, but in specific applications of general principles. They specify obedience to parents,—honor and respect for parents; respect for the older brothers and sisters; care, guidance, and example for the younger ones.

They, without exception, declare the duty of helpful service for all the members of the family, and they specify a great variety of ways in which that service may be rendered. They speak of present obligations, but many of them speak of their duty to assist as becoming later a duty to support when their parents are old.

The papers from one school dwelt with special emphasis upon the duty to be cheerful in the home, to carry sunshine, and to be kind in speech. These papers are not cold statements of obligation. They are warm with filial regard and love. They dwell at length upon the love of their parents for them, the sacrifices in their behalf in their infancy and later life, and they see their own obligations in the nature of recognition and return for what they have received.

The other papers, treating of civic duties, deal with the subject in a similar way. The children dwell at length upon what the city has done for them in its protection and care. They would, by their orderly conduct on the street, by their scrupulous care of public property, by their efforts to keep the streets and sidewalks clean, and their own home premises neat, try to show their appreciation of what they have received.

They are proud of their city, and would do nothing to dishonor it. They would speak well of it. They think that when the time comes they should vote, and vote for good men, and should meet their share of the public expense.

Such, in brief, is the result of my experiment. It satisfied me that our American children, in the process of being educated in schools said by some to be devoid of moral instruction, schools affirmed by some to be breeding places for unmoral or immoral character, are acquiring ideas of moral obligation sufficient, if put into practice in daily living, to make them safe, useful, and honorable members of society. We have no right to ask for more, and I have never seen any scheme of formal instruction which seemed to me likely to accomplish so much.

PAPERS ON MORAL DUTIES, PREPARED BY HIGH SCHOOL STUDENTS.

A. OUR DUTIES TO OUR FAMILIES.

I am the eldest daughter. In the family there are four children younger, and it seems to me now, and I think it will always seem, that I owe more to my family than any of the younger children. I was born in Russia, and came to America when I was about two years old.

My first and greatest duty is to serve them as they have served me, to have the same feelings concerning the bringing up of the younger children, and that of making as cheerful a home as I have had. The great aim in my life is to repay my parents by every possible kindness. I can now appreciate the trouble that they had in bringing me up and in putting me on my feet and in sending me to school. After I graduate from school it is my duty to help make a living so that my parents need not struglge so hard to keep us in a comfortable condition.

Their sending me to school has taught me things I shall never forget. I cannot tell anybody what the teacher and school has done for me. I can certainly say that the teachers come next to parents. Besides book knowledge, I have learned in school to be good, to be honest, to obey, in fact, to do many things that help build up a noble character. This is the ninth year I have been to school, and every day I learn more and more. I simply cannot express my gratitude for my school opportunities.

Every man has a duty to his family, and that is to repay them as they have served him. A man's life depends wholly on how he was brought up by his parents and families. I think the most ignorant people want their sons and daughters to be good, to do good. Above all we should be helpful in every way when our parents are old and feeble and depend on their children for all they need as their children have depended on them in childhood.

B. OUR DUTIES TO OUR CITY.

Our duties to our city are to do what we know is right, and to do all that we can do to beautify it and make it better. We should not walk on the lawns of our private houses or on the grass in our parks and public gardens which were laid for our benefit. We should not kill or annoy in any way the little gray squirrels of which there are so many in our city, and we should do all that we can to tame them and feed them so that they will stay with us.

A most important duty is to abide by the laws of the city, not to ride our wheels on the sidewalks, nor to drive the automobiles and motor cars above the speed limit, and this last is a most important law and one that is violated very often. A great many people run their automobiles faster than the law allows, and many accidents happen because of their recklessness.

We should be careful not to annoy our citizens by our playing; we should try not to break any windows with our balls, altho now and then a ball badly thrown will go thru a pane of glass. Then, too, with winter coming, we must be careful not to hit any one with a snowball, and we must keep the snow off of our sidewalks, and the ice well covered with ashes or gravel so that people can walk about more easily and safely. If every one did that, there would be fewer accidents.

There are a great many more duties to our city than I have time or space to write about, and I am sure that if every one took pains to find out what they were and did them, that we should have a model city.

GEO. H. MARTIN.

Secretary, Massachusetts State Board of Education.

Educational Classics

SELECTIONS FROM THE EDUCATIONAL WRITINGS OF GREAT THINKERS.

Ruskin on Education

THE most helpful and sacred work which can at present be done for humanity, is to teach people (chiefly by example, as all best teaching must be done), not how to better themselves, but how to "satisfy themselves." It is the curse of every evil nature and evil creature to eat and not be satisfied. The words of blessing are, that they shall eat and be satisfied; and as there is only one kind of water which quenches all thirst, so there is only one kind of bread which satisfies all hunger—the bread of justice or righteousness; which hungering after, men shall always be filled, that being the bread of Heaven; but hungering after the bread or wages of unrighteousness, shall not be filled, that being the bread of Sodom. And in order to teach men how to be satisfied, it is necessary fully to understand the art of joy and humble life—this, at present, of all arts or sciences, being the one most needing study. Humble life; that is to say, proposing to itself no future exaltation, but only a sweet continuance: not excluding the idea of foresight, but wholly of fore-sorrow, and taking no troublous thought for coming days; so also not excluding the idea of providence or provision, but wholly of accumulation;—the life of domestic affection and domestic peace, full of sensitiveness to all elements of costless and kind pleasure;—therefore chiefly to the loveliness of the natural world.

We shall find that the love of nature, wherever it has existed, has been a faithful and sacred element of feeling; that is to say, supposing all the circumstances otherwise the same with respect to two individuals, the one who loves nature most will be always found to have more capacity for faith in God than the other. Nature-worship will be found to bring with it such a sense of the presence and power of a Great Spirit as no mere reasoning can either induce or controvert; and where that nature-worship is innocently pursued—*i.e.*, with due respect to other claims on time, feeling, and exertion, and associated with the higher principles of religion,—it becomes the channel of certain sacred truths, which by no other means can be conveyed.

Instead of supposing the love of nature necessarily connected with the faithlessness of the age, I believe it is connected properly with the benevolence and liberty* of the age; that it is precisely the most healthy element which distinctively belongs to us; and that out of it, cultivated no longer in levity or ignorance, but in earnestness and as a duty, results will spring of an importance at present inconceivable; and lights arise, which, for the first time in man's history, will reveal to him the true nature of his life, the true field for his energies, and the true relations between him and his Maker.

To any person who has all his senses about him, a quiet walk, not over more than ten or twelve miles of road a day, is the most amusing of all traveling; and all traveling becomes dull in exact proportion to its rapidity.

Going by railroad I do not consider as traveling at all; it is merely "being sent" to a place, and very little different from becoming a parcel.

I believe an immense gain in the bodily health and happiness of the upper classes would follow on their steadily endeavoring, however clumsily, to make the physical exertion they now necessarily exert in amusements, definitely serviceable. It would be far better, for instance, that a gentleman should mow his own fields, than ride over other people's.

In order to define what is fairest, you must delight in what is fair; and I know not how few or how many there may be who take such delight. Once I could speak joyfully about beautiful things, thinking to be understood; now I cannot any more, for it seems to me that no one regards them. Wherever I look or travel in England or abroad, I see that men, wherever they can reach, destroy all beauty. They seem to have no other desire or hope but to have large houses, and be able to move fast. Every perfect and lovely spot which they can touch, they defile. Thus the railroad bridge over the fall of Schaffhausen, and that round the Clarens shore of the Lake of Geneva, have destroyed the power of two pieces of scenery of which nothing can ever supply the place, in appeal to the higher ranks of European mind.

---

*I forget, now, what I meant by "liberty" in this passage; but I often used the words in my first writings, in a good sense, thinking of Scott's moorland rambles and the like. It is very wonderful to me, now, to see what hopes I had once: but Turner was alive, then; and the sun used to shine, and rivers to sparkle.

The first thing which I remember as an event in life, was being taken by my nurse to the brow of Friar's Crag, on Derwentwater. The intense joy, mingled with awe, that I had in looking thru the hollows in the mossy roots, over the crag into the dark lake, has associated itself more or less with all twining roots of trees ever since. Two other things I remember as, in a sort, beginnings of life;—crossing Shap-fells, being let out of the chaise to run up the hills; and going thru Glenfarg, near Kinross, on a winter's morning, when the rocks were hung with icicles; these being culminating points in an early life of more traveling than is usually indulged to a child. In such journeyings, whenever they brought me near hills, and in all mountain ground and scenery, I had a pleasure, as early as I can remember, and continuing till I was eighteen or twenty, infinitely greater than any which has been since possible to me in anything.

A fool always wants to shorten space and time; a wise man wants to lengthen both. A fool wants to kill space and time; a wise man, first to gain them, then to animate them.

I suspect that system-makers in general are not of much more use, each in his own domain, than, in that of Pomona, the old women who tie cherries upon sticks, for the more portableness of the same. To cultivate well, and choose well, your cherries, is of some importance; but if they can be had in their own wild way of clustering about their crabbed stalks, it is a better connection for them than any others; and if they cannot, then so that they be not bruised, it makes to a boy of practical disposition not much difference whether he gets them by handfuls, or in beaded symmetry on the exalting stick.

Every great man is always being helped by everybody, for his gift is to get good out of all things and all persons.

God appoints to every one of His creatures a separate mission, and if they discharge it honorably, if they quit themselves like men, and faithfully follow the light which is in them, withdrawing from it all cold and quenching influence, there will assuredly come of it such burning as, in its appointed mode and measure, shall shine before men, and be of service constant and holy. Degrees infinite of luster, there must always be, but the weakest among us has a gift, however seemingly trivial, which is peculiar to him, and which, worthily used, will be a gift also to his race forever.

There is not any matter, nor any spirit, nor any creature, but it is capable of a unity of some kind with other creatures; and in that unity is its perfection and theirs, and a pleasure also for the beholding of all other creatures that can behold. So the unity of spirits is partly in their sympathy, and partly in their giving and taking, and always in their love; and these are their delight and their strength; for their strength is in their co-working and army fellowship, and their delight is in their giving and receiving of alternate and perpetual good; their inseparable dependency on each other's being, and their essential and perfect depending on their Creator's. And so the unity of earthly creatures is their power, and their peace; not like the dead and cold peace of undisturbed stones and solitary mountains, but the living peace of trust, and the living power of support; of hands that hold each other and are still.*

It is good to read of that kindness and humbleness of St. Francis of Assisi, who spoke never to birds, nor to cicada, nor even to wolf and beasts of prey, but as his brother;—and so we find are moved the minds of all good and mighty men, as in the lesson that we have from the "Mariner" of Coleridge, and yet more truly and rightly taught in the "Hartleap Well"—

> "Never to blend our pleasure or our pride
> With sorrow of the meanest thing that feels,"—

and again in the "White Doe" of Rylstone, with the added teaching, that anguish of our own

> "Is tempered and allayed by sympathies
> Aloft ascending, and descending deep,
> Even to the inferior kinds;"—

so that I know not of anything more destructive of the whole theoretic faculty, not to say of the Christian character and human intellect.† than those accursed sports in which man makes of himself cat, tiger, leopard, and alligator in one; and gathers into one continuance of cruelty, for his amusement, all the devices that brutes sparingly and at intervals use against each other for their necessities.

He who loves not God, nor his brother, cannot love the grass beneath his feet, nor the creatures which live not for his uses, filling those spaces in the universe which he needs not: while, on the other hand, none can love God, nor his human brother, without loving all things which his Father loves; nor without looking upon them every one as in that respect his brethren also, and perhaps worthier than he, if, in the under concords they have to fill, their part is touched more truly.

---

*A long, affected, and obscure second volume sentence, written in imitation of Hooker. One short sentence from Ecclesiastes is the sum of it: "How can one be warm alone?"

†I am more and more grieved, as I re-read this and other portions of the most affected and weak of all my books, (written in a molding time of my life,)—the second volume of "Modern Painters,"—at its morbid violence of passion and narrowness of thought. Yet, at heart, the book was, like my others, honest; and in substance it is mostly good; but all boiled to rags.

Morbidly Franciscan, again! and I am really compelled to leave out one little bit my friend liked,—as all kindly and hopeful women would,—about everything turning out right, and being to some good end. For we have no business whatever with the end of things, but with their beings; and their beings are often entirely bad.

Things may always be seen truly by candid people, tho never completely. No human capacity ever yet saw the whole of a thing; but we may see more and more of it the longer we look. Every individual temper will see something different in it; but supposing the tempers honest, all the differences are there. Every advance in our acuteness of perception will show us something new; but the old and first-discerned thing will still be there, not falsified, only modified and enriched by the new perceptions, becoming continually more beautiful in its harmony with them, and more approved as a part of the infinite truth.

Spontaneous Attention

MAN, as animal, attends spontaneously only to that which concerns and interests him, or which produces in him agreeable, disagreeable, or mixed feelings. Since pleasure and pain are but signs that certain of our tendencies are being either gratified or opposed, and since our tendencies are expressions of the essence of our personality, of our character, it follows that spontaneous attention has its roots in the very foundation of our being. The character of a person is revealed by the nature of his spontaneous attention, at any rate it shows its fundamental tendencies. His spontaneous attention tells us, whether he is frivolous, vulgar, and narrow, or broad and deep. An artist will spontaneously give his whole attention to a beautiful sunset in which a matter-of-fact rustic sees only the approach of night; the geologist will bestow it upon the stones he chances to see as he walks along, which for the uninitiated have no interest whatever.

This is an evident fact and one that confronts us everywhere. Indeed, spontaneous attention without a prior emotional state would be an effect without a cause. We might be led to conclude, therefore, that this is an old and universally acknowledged commonplace in psychology. But strangely enough this is not the case, and chiefly because the majority of psychologists have obstinately persevered in the exclusive study of the higher forms of attention, thus beginning at the end.*

It is highly important that we study the primitive form of attention, for without it nothing can be intelligible, nothing explainable, everything must be vague, and we should be without a clue in our study. Hence we shall not hesitate to multiply proofs.

A man or animal, hypothetically incapable of experiencing either pleasure or pain, would be incapable of attention. There could exist for him only mental states more or less intense, which would be something entirely different. We cannot, therefore, agree with Condillac, that if amid a multitude of sensations, one predominates by its intensity, it is forthwith "transformed into attention." It is not intensity alone that acts, but, above all, our adaptation, that is to say, our tendencies, as they happen to be either opposed or gratified. Intensity is only one element, and oftentimes the least important.

Observe how natural spontaneous attention is and how it

---

*The psychologists who have clearly seen the importance of the emotional states in attention, are so few, that I am able to cite only Maudsley, "Physiology of Mind," Chap. V; Lewes, "Problems of Life and Mind," Vol. III, p. 184; Carpenter, "Mental Physiology," Chap. III; Horwicz, "*Psychologische Analysen,*" Chap. I, and a few of Herbart's disciples, particularly Volkmar, "*Lehrbuch der Psychologie,*" Vol. II, Sec. 114.

requires no effort. The idler, sauntering in the street, will stare with open mouth at a passing procession and preserve perfect imperturbability while the spectacle lasts. If at any moment there is a sign of effort we may be sure that attention is changing its nature and is becoming voluntary, artificial.

In the biographies of great men, examples abound, which prove that spontaneous attention depends wholly upon emotional states. These examples are especially useful for our purpose, because they show the phenomenon in all its force. Instances of great attention are always caused and sustained by great passions. Fourier, says Arago, was wayward and incapable of close application until his thirteenth year, when he was initiated in the elements of mathematics and became a different individual. Malebranche by chance and reluctantly took up Descartes's treatise "On Man"; the reading of it "caused such violent palpitations of the heart that from hour to hour he was compelled to stop reading for a while and lay the book aside, to catch his breath," and he became a Cartesian. The example of Newton and of many others may be cited. "But," some one will say, "these traits merely betoken the dawning of a vocation." To be sure; but what is a vocation but attention finding its way, and getting its bearings for the course of life? What better examples of spontaneous attention can there be, for here we have it not lasting for only a few minutes or an hour, but going on forever.

Let us examine another aspect of the question. Is the state of attention continuous? Apparently, yes; but actually it is intermittent. "What is often called attending to a thing is strictly speaking the following out of a *series* of connected impressions or ideas, with an ever renewed and growing interest. The witnessing of a theatrical performance is an example in point. . . . . Even when attention is dealing with a small material object, such as a coin, or a flower, there is a continual passing of the mind from one aspect to another, and from one series of suggestions to another. It would be more accurate to say that the object is made the center of attention, the point from which it starts and to which it continually returns."[*]

Certain psycho-physical researches of which we shall speak further on, show that attention is subject to the law of rhythm. Pres. G. Stanley Hall, of Clark University, who has made a careful study of the gradual changes of pressure produced upon the finger tips, has found that the perception of continuity seems impossible, and that one cannot have a perception of continuous increase or continuous decrease. Attention chooses between different degrees of pressure, in order to compare them. Certain errors in the notation of astronomical phenomena are also due to these oscillations of attention.[*]

Maudsley and Lewes have compared attention to reflex action; it might be compared more properly to a series of reflexes. A physical excitation produces a movement. In like manner, a stimulation coming from the object produces an incessantly repeated adaptation. When spontaneous attention is deep and tenacious, it has all the characteristics of an unsatisfied passion, ever striving to attain its object. Vicq d'Azyr maintained that monkeys were not capable of being educated because they could not be made attentive. The assumption is erroneous. Gall retorted: Show to a monkey its female, and you will find out whether it is capable of attention. The mind of Newton acts in like manner when it is confronted by a scientific problem; it is a perpetual irritant, urging him onward without cessation and not giving him any rest. No fact can be clearer and less contestable, none more easily verified than this, that spontaneous attention depends upon emotional states, such as desires, gratifications, discontent, jealousy, etc.; its intensity and duration depend upon the intensity and duration of those states.

---

[*] J. Sully, Outlines of Psychology. Chap. IV.

[†] "American Journal of Psychology," 1887. No. 1. "*Philosophische Studien,*" 1888, Vol. V.

Let us here note an important fact in the mechanism of attention. The actual intermittence in apparent continuity makes protracted attention possible. If we keep one eye fixed upon any one point, we will find that our vision becomes confused after a while; a cloud seems to form between the object and ourselves, and in the end we see nothing at all. If we lay one hand flat upon a table, without bearing upon it—for pressure is movement—we shall find that little by little the sensation decreases until finally it disappears altogether. The reason is, that there is no perception without motion, however slight it may be. All sensorial organs are both sensitive and motor at the same time. When absolute immobility eliminates one of the two elements—motility—the function of the other is soon rendered null and void. In brief, motion is the condition of change, and change is one of the conditions of consciousness. These familiar facts of our every-day experience, show us the necessity of these intermittences in attention, often imperceptible to consciousness, because they are so very brief, and of so very delicate a nature.

T. Ribot.

Education is man's interpretation of God's will toward mankind.

God made mothers because He wanted the heart to be the ruling principle in education.

The school that has no heart at its center is a hollow fraud. So is the school system that lacks the heart

The Autobiography of a Teacher

Graduation and the Quest

I COME now to my graduation. The last year at college was an extremely busy one. Had the general conditions of my life been less favorable, I should doubtless have counted myself overworked. As it was, I went into everything with genuine enthusiasm, and would certainly not have changed places with any one in all the round world. In my actual life there was much to make me happy, and the future was full of beautiful and alluring vistas. Under such conditions one can do a great amount of work and reckon it no task whatever. In spite of its obviousness, we do not sufficiently realize this in either our educational or social plans. I have read much of the discipline of sorrow; and, as things commonly go, we all, sooner or later, get enough of such discipline. I have worked, myself, in joy and I have worked in sorrow; and I have seen others do the same--and I have noted the harvest. It seems to me that the deeper source of good performance is to be found in a genuine and wholesome joy.

Graduation is such a time for summing up results that I shall probably be ranging pretty freely on both sides of the actual event itself. I have already spoken of the wide field of intellectual interests offered by geology as being its determining attraction for so general a mind as my own. It was characteristic of this same quality that during the four years of college life I took first prizes in mathematics, English, and economics, and that at graduation I should deliver an oration on Darwin. Such wide interests have naturally kept me from ever being a scholar in the modern sense of the word, but I cannot find it in my heart to regret them, for they have all conspired to make life so very well worth while.

The mathematical prize was given in the freshman year for extra work in modern geometry. I have always regarded the taking of this prize as something of a triumph, for I began geometry, as I have already said, with tears in my eyes. I do not mean for a moment that it was a triumph in any personal sense, for even now I am not a technical mathematician, but I mean that it was a triumph to have overcome the initial difficulties sufficiently to grasp the inner and hidden beauty of the subject. Had geometry been an elective I fear that I should never have entered this garden of delight. As it was, I had a good and gentle teacher who made the subject transparently clear, and who really showed me what good teaching was. This and other experiences gave me in time somewhat pronounced views on prescribed and elective studies.

It is essential to good teaching that children should study only what they are honestly interested in. But this principle is open to two interpretations. In the hands of the foolish it may mean that children must be taught only what they want to learn. In the hands of the wise it reads that children must be interested in the studies that it is desirable that they should learn. This vital difference of interpretation is, I think, at bottom, the cause of all the controversy over the question of interest. It is one thing to take children's interests, ready made as it were, and play upon them for all their limited worth; and quite a different thing to create new and richer interests, and then utilize them for individual and social good. In a word, the principle of interest, in sound pedagogy, is more a question of teaching methods than of the curriculum itself, for it goes without saying that no subject ought ever be offered in any curriculum whatever that cannot be made the source of a genuine and helpful interest. And it also goes quite without saying that in determining the proper subjects of study a trained teacher is a far better judge than the most precocious child can possibly be, or even than the average parent.

I once made the mistake of thinking that children ought to determine their own studies in order that they might surely be interested in them. But I now see the teacher's art is to *get* them interested in studies that promise to be helpful. Excessive specialization makes us moderns rather one-sided creatures at best. It is a pity to let education, and especially secondary education, mean anything less than the unfolding of the human spirit along the broadest and most catholic lines. No one but a veritable genius is qualified to select his life work until he is twenty or more. It is the business of the older generation to open wide the windows on life, to present the fair domain of human knowledge, to help the new generation to get its bearings and act intelligently. I believe, therefore, in prescribed school studies, the best, the broadest, the most illuminating possible, but prescribed; and even at college, in such influence or direction as will secure a broad and balanced course for all undergraduates. The lad must taste science and mathematics and the languages and the humanities before his grasp on the intellectual life is at all sure; and before he is in a position to judge what special lines of work are properly for him. In the best of our universities, the professional schools are open only to college graduates, and this seems a very practical argument for making the undergraduate course as broad and human and cultural as possible.

In the sophomore year there was only one prize offered—I think it was in oratory—but as I had no gifts in that line, I did not even compete. I have always looked with envy upon those who could speak to advantage, and who could carry their audiences with them. It has happened, curiously enough, that during the past few years I have given many lectures, but this has been not at all because I am qualified for such work, but solely because I have been interested in causes which lacked better spokesmen. It seemed finer to speak lamely than not to speak at all. The consciousness that no one can judge the performance more severely than I judge it myself has perhaps been Spartan comfort and eliminated all embarrassment and nervousness. I even enjoy speaking. But to speak well requires an amount of physical poise and magnetism given only to the robust. I return so often to my own limitations, not in any complaining way—for in spite of its handicaps I have found life very good—but because these limitations, inconvenient as they are personally, have been a great help to me as a teacher. They have led me to emphasize what I am not myself, and to try to spare other boys what I found to be disadvantageous to me. In particular, I have been led to count good health and the accomplished body as the first essentials in any rational scheme of education. It seems to me quite futile to teach boys and girls at such infinite pains and to omit the sound health that would enable them to make the teaching personally and socially effective.

The English prize came during the junior year. It was awarded for a special essay, the subject for that particular year being the progress of civilization as shown by the development of the metallurgic arts. I began, I presume, with Tubal Cain and ended with the successors of Sir Henry Bessemer. We should hardly think it wise nowadays to ask lads of nineteen to write essays on such tremendous topics, but those were somewhat discursive days, when the newspapers printed editorials on any one of the cardinal virtues, and every young man of real promise had a lecture up his sleeve on Socrates or Shakespeare taken in the large. My own essay was probably as illuminating as those of its class. It was the custom to announce the prizes at the annual commencement. A large part of the fun of gaining a prize was the perhaps questionable pride of having one's cleverness thus publicly advertised. The English prize, I remember, was number six on the list. When the provost came to it, he hesitated and fumbled among his papers only to announce in the end that number six had been awarded, but that he had mislaid the name of the winner! It was a cruel disappointment, and I have often wondered how the provost could have failed to realize that it would be. Several weeks later, when I was up in the coal regions, I received official notification that the prize was mine, and still later the prize itself was paid me; but the joy had been quite squeezed out of it. When I recall the instruction in English, I think this prize must have been offered for a gift of nature, rather than for anything so artificial as human training.

During the senior year we studied economics. The subject was much less valued and much less highly developed then than now, and I fancy that the instruction was necessarily quite elementary. Our professor was an extreme protectionist, and being a brilliant talker, as most Scotch Irishmen are, he carried us all along with him. My own allegiance, however, was short-lived. As I came to think over his arguments they got to be less and less convincing, and I found myself a sincere doubter. Several years later, as assistant literary editor of *The Press*, it was a part of my work to review economic books. The political complexion of the paper naturally brought us all the extreme protectionist writings. It took only a small dose of this sort of literature to complete my own conversion to an opposite point of view, and I have ever since been an absolute free-trader. But whether a man is a protectionist or free-trader is not so much the result of the particular arguments that have been brought to his attention, as it is the almost inevitable outcome of his general attitude of mind on all social questions, and this, I think, is particularly true of older men who have reached some degree of consistency in their views. Among thoughtful persons, I sometimes amuse myself by silently predicting a man's economics from his religious opinions, or his religion from his educational views. In such enterprises the successes naturally make deeper impression than the failures, but in the main I feel as sure of these cross arguments as I do that brunettes will have contralto voices and blondes soprano.

The human side of economics appealed to me then, as it has ever since, so that my going in for the economic prize was not a mere *tour de force*, but was the result of a deep and genuine interest. The prize could not have been very difficult to win or it would never have fallen to any one of so slender an equipment as myself. It was awarded for a competitive essay, the given subject that year being "International Copyright." I took, of course, the affirmative position. My pleasure in winning the prize was considerably heightened when a rumor got abroad that the professor's own position was the opposite, and that he had disinterestedly given judgment against his own side.

In those primitive days—nearly a quarter of a century ago—

it was the custom for all the upper honor men to prepare graduation orations, and patient commencement audiences were expected to listen to at least half a dozen of these baccalaureate efforts. Naturally it was the ambition of each honor man to have his oration accepted, but he could easily get out of delivering it, if he had any good and sufficient excuse. This represented my own case. Darwin had just died,—in the preceding April, if I remember correctly—and the subject was, therefore, particularly timely. I did my best in working it up, writing and rewriting until I had compressed a lot of facts into the prescribed limits, but I had no intention of delivering the oration. All I wanted was to have it accepted. To my surprise and consternation my mother objected to my begging off and quite insisted that I should attend the rehearsals and speak along with the rest.

It must be remembered that these commencements were great occasions, and, to a quiet boy, loomed up even larger than they really were. They were held in the Academy of Music, a fine old building whose proportions and acoustical properties made it at that time the best auditorium in America. It was designed by a German architect temporarily residing in Philadelphia, and, when new, ranked next to La Scala at Milan. This fact is apparently forgotten by those who propose, almost annually, to tear it down and put up a smarter structure. The provost sat on his throne of red velvet and gilt in the center of the large stage; the professors gathered around him like a defensive body of learning; the graduating class, in cap and gown, sat on each side of the stage youthful, radiant, and self-important. In front of all came broad bands of sweet June flowers, the quaint baskets and stiff old-time bouquets offered by loving friends as symbols of the laurels which each man of us was later sure to win. On each side of the stage were piles of silk umbrellas, silver-topped canes, books, and other articles a young man might be supposed to want. America was much poorer then than now, and presents had a utilitarian as well as a sentimental value. And then there was music. Between each oration, I had almost said between each announcement, so prodigal was it, the orchestra "discoursed" well-known and favorite tunes,—not too gay, for it was a dignified occasion, and not too somber, for at heart we were all merry and full of hope.

Beyond the footlights and the orchestra were the proud and happy faces of those who for us really made the occasion, the mothers and fathers, the sisters and sweethearts, the cousins and younger brothers. It was a time for family parties; the good old housekeeper who had helped my sister and me with our earliest reading was there to testify her ceaseless interest. This assemblage would doubtless look old-time now, but it had a tender grace about it which nothing could destroy. These mothers with the son-love in their eyes, these fathers clearing misty spectacles, these maidens of uncertain preferences, breathed into the scene an emotion which none of us could help but feel. It is the fashion to regard commencements as dreary performances. Perhaps they are, objectively speaking, but for me the old glamour still remains. And it is a great thing that each year we should be adding to the less sanguine forces of idealism all this new, strong hope.

It seems to me that the mothers were younger in those days. Now they are gray-haired, placid looking ladies. Then they vied with their daughters in youthful comeliness. My own beautiful mother was so girlish looking that even several years later she was several times mistaken for my wife; and it came to be a common mistake to assume that my mother and sister were sisters.

I had never spoken in public, and I expected, with good reason, to be very nervous and stage-struck. But when the moment arrived, some larger, impersonal quality in the occasion took possession of me, and I even ventured to make some trifling changes in the memorized oration. I have always been glad that I did pluck up courage to speak. I think that very few persons heard what I had to say, and had they heard, it is more than doubtful whether they would have gained any juster estimate of Darwin and his great work. But it certanly gave my mother genuine pleasure, and it was good for me. It made it easier in later life to attempt enterprises which on the face of them seemed considerably beyond my powers.

THE CHILDREN OF GOOD FORTUNE.

A friend of mine, a musician, once used an expression which I have since treasured. He spoke of "the habit of success." My own successes at the university were all small. They could have been duplicated or surpassed by any one willing to give the same amount of time to the work. Lack of physique and of social ideal made me miss the larger human success which I should now hold to be vastly more important than taking prizes and coming out at the front. But I did gain, largely thru my mother's ambitious expectations, what was highly important for a shy, delicate boy to gain, and that was just this habit of success. Such things as I could go in for, I got myself into the way of requiring that I should win. I might have gone in for better things than I did, but one can only seek such good fortune as one sees. This idea of efficiency came to have a fixed place in my thoughts, and it made me take all defeat very hard. When I came in later years to formulate my ideas of morality in *The Children of Good Fortune*, I found that success played a large part in all my fundamental conceptions. Morality means for me not a simple quantity, but a resultant of two factors—worth and efficiency; worth in the ideal sought, and efficiency in the seeking. But I shall return to this later, and, I fear, many times, for this double moral yardstick is very exacting. When applied to our older and better organized systems of education it is prone to record high efficiency and doubtful worth; and when applied to newer systems it too often measures off a high degree of worth and a pitiable lack of efficiency. Either ingredient in excess is rather dazzling, and we come to believe in things and to praise things that are in themselves neither credible nor praiseworthy. In scrutinizing performance in general, two questions are always pertinent—was it well done? and was it worth while?

TO WRITE OR NOT TO WRITE.

This will, perhaps, be a good place to speak of the beginnings of my literary work, for modest as the work is, it has played a determining part in my life as a teacher. During the last two months of college, I had what was for me a tremendous amount of writing on hand, no less than three separate essays in progress at practically the same time—a graduating thesis on the Coal Mines at Drifton, the essay on International Copyright, and the oration on Darwin. I was too little used to writing to do it easily, and my total instruction in English had been curiously meager. The three essays, therefore, represented a large amount of work. I should be sorry to have to read them now, but I took genuine pleasure in writing them, and that counted for much. I had read a little of the English essayists, and had taken as my model a writer whom I should now be very sorry to imitate—Macaulay. As I recall the standard, it consisted in a succession of antithetical and balanced sentences that must have been very dreary to the ear, and quite incapable of expressing those finer shades of meaning upon which the true impression really depends. At that time these over-charged sentences were delicious morsels to my tongue, and I doubtless rolled them off at an appalling rate in both speech and writing. Indeed, I am afraid that I did not recover from this unfortunate taste for ponderous, early-Victorian English until several years later, when I came to read Matthew Arnold and Cardinal Newman. I have always felt a genuine gratitude to these men, for they did help to loosen my style, and they did show me, however partially I may have profited by it, how telling and beautiful is the mother tongue when one is content to be sincere and fluid and natural. I still turn to Matthew Arnold to thaw me out when I find that my own sentences are growing hard and metallic.

This taste of literary composition, little promising as it was, did serve to whet my appetite, and I determined, even before I was out of college, that I would eventually be a man of letters. I had not the courage to plunge in at once and make literature my profession, but that was what I meant to work round to. I have naturally wondered since what the result would have been had I gone in for letters immediately after graduation. Perhaps I should be writing better English than I am writing now, but perhaps, also, I should have less to write about. My mother with her magnificent faith in all my abilities gave me most helpful and generous encouragement. I think she honestly believed that I had only to select my department to become in the end a recognized classic. Another friend, in whose judgment I had much confidence, disposed of these airy literary pretensions by saying somewhat epigrammatically: "You may have taste, but you have no talent."

However, no one can say whether a man ought to write or ought not to write,—that is, no one but the man himself. The matter is personal and temperamental. If the impulse toward expression is there, it must find some vent, whether friends approve or publishers buy. My own writing was not so much a choice as a necessity. I had too large a surplus of nervous energy not to require some form of self-expression, and as other avenues were largely closed to me, I had either to write or to suffocate. In reality my writing has been a great happiness to me. And in a large way it has been the most important part of my teaching work. It has given me a larger audience than I could hope to reach by word of mouth, and, more sacred still, it has brought me some of the best and most helpful friendships of my life.

Looking back upon the attitudes of my mother and my friend, I can see, of course, that both were exaggerated. But it seems to me that of the two, my mother's attitude was far the more helpful. There comes a time when one needs criticism of a most penetrating kind, and one is pretty sure to get it from the great, impersonal outer world, a world which properly regards neither intention nor effort, but solely the finished performance. When one has done one's best, one must be ready to meet this searching criticism, to welcome it, and to gain such lesson from it as one can. But it is quite different in the delicate emotional world of motive and impulse. Here criticism is paralysis. A home atmosphere which is constantly critical may protect us from poor writing and other mediocer performance, but it also has the tendency to rob us of the chance of better things. It is a great boon for boy or man to have home people who believe in him. I feel the same about school and college. It is the men and women who inspire, and not the critics, who are the true teachers. Even at the university my mother was my best teacher, for she believed in me. In her estimate of the value of my writings she was objectively quite wrong; but subjectively, as a spiritual motive, an inspiration, she could not have been more right.

There is a practical side to the writing habit which a teacher may wisely regard. If one can write acceptable English, and has something to say, literature offers one of those wholesome parallel occupations which add immeasurably to the joy and independence of any professional life. A teacher who can do nothing but teach is commonly a poor teacher, quite out of touch with life, and pitiably dependent upon the particular post in hand. And the same thing might reasonably be said of preacher or writer. By having two or more related occupations, it is quite possible to make each help the others; and between them to live a much richer and more effective life. Personally, I am quite sure that my writing and geologizing have helped my teaching, just as I hope that my teaching has helped them. It is not necessary to be a Jack-of-all-trades, tho even this has, I think, a great advantage over its opposite narrow specialization.

When I came to graduate, at twenty, I had no immediate plans for the future. I had supposed that it would be difficult to obtain suitable work. I had no realization of the immense amount of work to be done in the world, or of the difficulty of finding acceptable workers. It may be that college graduates were somewhat rarer in 1882 than they are now, or it may be that my own friends were particularly thoughtful in looking out for me. At any rate, I recall that within a comparatively few months after graduation, a number of promising openings presented themselves, and the practical side of the quest came to be a process of exclusion. As I remember them, these offers included a junior mastership in mathematics in a boys' school; a post in the engineering department of the Pennsylvania Railroad; an assistant's place on a railway survey in North Carolina; the post of assistant superintendent of a large gold mine in California; and geological work of considerable extent in the South. The variety is the thing that even now most impresses me. It helped to create my belief that, in America at least, one may literally pick and choose one's occupation. It is a tonic belief, and I am constantly preaching it to my boys, for it still seems to me true—given, of course, fair average endowment and a reasonably good education. I ought perhaps, to add to these requirements, courage, since it is the lack of it that commonly enslaves the young.

TEACHING.

One opening that I had anticipated did not present itself. At the beginning of the senior year it was announced that the student in geology who came out first at graduation would be made an assistant for the ensuing year. I think that the salary was to be a thousand dollars. I wanted the post very keenly, for I loved the student life, and had a genuine devotion for geology. There were brighter fellows than I in the department, but none, I think, quite so industrious. It was, therefore, an easy matter to win first place. Acording to the published terms, the assistantship was mine to accept or refuse. Shortly before graduation, however, the professor sent for me and explained that while I had won the place, hands down as it were, he had decided to give it to another student, as he felt that my own health was somewhat precarious, and that out door work would be better for me. It was a bitter disappointment. I have no doubt that the professor acted for what he supposed to be my own good, but it was several years before I felt quite right about it.

I thus narrowly escaped being a teacher of science before I was twenty-one. The post in mathematics had no attractions for me, chiefly I think, because of my loyalty to geology. Teaching presented itself to me then wholly from the point of view of the subject, and not at all from the point of view of the art. It would have seemed to me a distinct treason to have accepted any but strictly geological work. I remember looking upon the fellows who went into business as somehow subtly disloyal to a higher calling. It did not occur to me to teach English, in spite of my interest in writing. For one thing, I should not have felt myself qualified, and for another, the teaching of English has always seemed to me rather fatal to the writing of it.

It was not until four years later that I began regularly to teach. But these intervening years were so full of adventure and experience that I count them among the most profitable years of my life. They were very hard years, but they meant so much to me personally that I can hardly imagine any immediate graduate study that would have yielded such human returns. I have been disposed to think ever since that it would be a wise plan for most students to leave college at the end of their undergraduate course, and see something of the world of events before they go in either for teaching or graduate study. I should not like to think of my own life with the university left out. I feel very much as a young lad did whom I persuaded to go to college. When I inquired if he liked it, he replied most enthusiastically in the affirmative, and then added: "Why, sir, if I had not gone, I should never have known what I missed!" But in spite of this keen appreciation, I do feel that it is possible to remain in the academic world too long and too continuously, and so lose touch with that large world in the great open of life which it behooves each one of us to meet and to know. It is also true that the too-long doing of these ready-made academic tasks rob a man of initiative and power. My own first plunge into the world of affairs was an heroic one. But I see that I must take it up in the next paper.

C. Hanford Henderson.

The Rise of the United States

IN discharging the duty with which I have been honored, for the opening of the present course of Cambridge lectures, I am asked to speak to you as briefly as may be on the greatest fact in modern history, the rise and development of the United States.

Neither George Canning nor his King called this New World into being, and it was not called into being by anybody for the purpose of redressing the balance of the Old. As to its most significant, and, for a long time, its leading settlements, it was called into being by Charles I., when he pursued Separatists, non-Conformists, and others, in the professed interest of the Church of England. Its growth was checked by the rise of Oliver Cromwell; and while the Protectorate lasted the Puritan emigration ceased. Charles II. revived it, and he and his brother James, by their treatment of the Puritans in England, and the Covenanters in Scotland, did more than any other human power to make New England and other large sections of the United States what they are.

Tudors and Stuarts alike, whatever their intentions, were helpful to the infancy of the new nation, and there is fitness in its possessing enduring monuments to commemorate them, Virginia, Maryland, the Carolinas, Jamestown, and James River.

At the beginning of this period, say at the opening of the seventeenth century, and near the close of Queen Elizabeth's long reign, all England was much less than London is now. The total population of England was a little over four millions, and what is now far the greatest city in the world had then possibly a quarter of one million within its limits. A rapid increase was prevented, in fact, a material decrease had been caused, by the enormous death rate, due to epidemics, which science had not learned to control, to unhealthful surroundings, to constant wars, and to a deplorable waste of human life in the ordinary administration of justice. Between 1592 and 1665, London had eight visitations of the plague. The sweating sickness and the smallpox were almost equally dreaded, and equally uncontrollable. The unsanitary habits of the people were extraordinary. The very King for whom the first settlement in Virginia was named, according to the declaration of James Balfour, never washed even his hands. Prisoners were tortured, robbers were hanged, witches and religious men whose orthodoxy was not our doxy, were burned. For trivial offences men and women were whipped or set in the stocks, or nailed by their ears to the pillory. Witchcraft was so firmly embedded in the faith of the people that the greatest legal writer of his time, Sir William Blackstone, said as late as when the American Colonies were on the point of revolting, that every nation in the world had borne testimony to it, and that to deny it was to deny the revealed word of God.

This is, of course, not a fair picture of the England from which the Colonists went out, tho some of the noticeable features are accurately portrayed. You can faintly conceive the limitations of the England of that day, how little it was like the present world, when you add that it knew nothing of the circulation of the blood, of vaccination, of gravitation, of the velocity of light, of illumination by petroleum, gas, or electricity, or communication by fast or cheap mails, of the telegraph, or the telephone; that it had no newspapers, and that its books were few and dear.

Yet this England had Magna Charta, and parliamentary government; had greater and better secured personal liberties than any other country in Europe, and was more jealously watchful of them; had an inbred respect for law, and for its officers, and, in spite of a degree of illiteracy that seems now surprising, probably led Europe also in diffused intelligence, and in a reasoning devotion to religion. In the gallery of England's immortals, Milton was soon to be added to Shakespeare; and the nation that was rapidly approaching civil liberty in an almost equal co-operation were to precipitate a revolution and execute a king.

Meanwhile, the land in which the new nation was to spring up, a land of rivers and lakes and unbroken forests, beyond the Atlantic, lay palpitating with wild life under summer suns, or blanketed under winter snows, practically unpeopled. The first feeble colony arrived at Jamestown seven years after the opening of the century; the little company borne by the *Mayflower* to Plymouth Rock thirteen years after that. The only inhabitants at the beginning of the seventeenth century were the mysterious Aborigines, whose origin, languages, and customs were alike unknown, whose trails thru the forests were the only roads, whose patches of Indian corn were the only agriculture, whose clusters of wigwams were the only cities. Between the Great Lakes and the Gulf, from the Atlantic to the Alleghenies, there were in all less than 200,000 of them, in limits which now contain the second city in the world, seventeen great States, and a total population of over 30,000,000.

At the beginning of the century you are studying, this New World had started into full life among the forests. Scattered and still feeble Colonies, controlled and mainly peopled by Great Britain, lay in isolated settlements along the Atlantic coast, from Massachusetts to the Gulf of Mexico, and at several points were spreading westward toward the Alleghenies. By this time they had come to include a sprinkling of several Northern races—soon to melt wonderfully into the Anglo-Saxon mold, and to renounce other allegiance in order to seek the privileges of British subjects. There were Dutch in New York—in fact, New York was, for about half a century, a Dutch city. There were Swedes in Delaware, and Germans in Pennsylvania, and to these were added the best France had to give in a considerable influx of the persecuted and exiled Huguenots. There were many sects, too, and these did not melt so readily into one mold. There were Puritans in most of New England, Baptists in Rhode Island, Episcopalians in New York and Virginia, Presbyterians in New Jersey and the Carolinas, Quakers and Lutherans in Pennsylvania, Roman Catholics in Maryland. All of them insisted on freedom to enjoy their own religion—many of them had come to an uninhabited country for that purpose—but not all were ready to tolerate other people's religion.

At times there had been efforts to impose upon them the Established Church of England, but to this they thought consent impossible. Religion and education they fostered alike. The Church and the school-house went with every fresh pioneer settlement. But many of them had left England to escape bishops; others to escape the ruling classes, and in their new homes they would submit neither to a prelacy nor to a nobility. They demanded the right of the English-born to participate in the government, but they were not ready to let everybody share it with them. In the early days of New England none but church members could vote or hold office. As late as 1679, hardly one grown man in Massachusetts out of five could vote. Cotton denounced democracy, thinking no doubt with Montesquieu, that liberty may be least safe under a rule of the mere majority. Nobody dreamed of letting Indians or negroes vote, till long after the Revolution a considerable property qualification was required from every voter.

In one way or another they were ruled by officers from England, and they brought with them the general body of English law. But they had organized parliamentary government in most of the Colonies, on the English pattern, with more exact representation and under written constitutional arrangements more precise than England had ever employed. They looked to England for protection, spoke of it habitually as home, and held themselves under its authority; yet they already exercised a large measure of local self-government, rightly considered this a necessity of their remote situation and peculiar perils, and regarded any infringement upon it with even more than the historical Anglo-Saxon jealousy.

The old ideas of blind loyalty to the throne had been shaken, first by the Puritan revolt against Charles, and later by the deposition of James. They had twice seen Parliament set aside a King, and it was only a step from this to the belief that not the King but the representatives chosen by the people must always be, in the end, the controlling power of the State. From that again, the distant Colonists found it only a step farther to the belief that in their remote isolation they should choose their own representatives instead of submitting to a rule by representatives chosen back in England for English purposes. Thus early had the "Mother of Parliaments" taught the sons of Great Britain beyond seas to better her instructions.

And yet a personal sense of loyalty to the Sovereign remained down to the very outset of the Revolution, often as strong in America as in England, sometimes stronger, and generally more disinterested.

Benjamin Franklin wrote privately, in 1768, to his friends at home of George III. as "the best monarch any nation was ever blessed with." In 1769, when he had to report the refusal by the House of Commons to repeal offensive customs duties, he used even stronger language:

> I hope nothing that has happened or may happen, will diminish in the least our loyalty to our Sovereign or affection for this nation in general. I can scarcely conceive a King of better dispositions, or more exemplary virtues, or more truly desirous of promoting the welfare of all his subjects. The body of this people, too, is of a noble and generous nature, loving and honoring the spirit of liberty, and hating arbitrary power of all sorts. We have many, very many friends among them.

Seven years later came the bitter arraignment of the same Sovereign in the Declaration of Independence, and the richest possession of the English crown was lost forever.

From the outset the Colonists were thrown on their own resources, in a wild continent, and among savage people. The survival of the fittest made them a picked body, a real *corps d'élite*. Their faculties were quickened by necessity, by danger, and by climate. The lonely life and the necessity for quick decisions, often without much opportunity for consultation, led to a marked personal independence, an ever-ready resourcefulness, and an absolute freedom of individual initiative, which speedily became general characteristics.

But at the beginning of the eighteenth century, their opinions and their traits had not worked out to the logical conclusion. With all their personal independence, the Colonists never dreamed of standing alone; with all their free personal initiative they still looked implicitly to the Mother Country for guidance.

The growth of these Colonies, which for a long time was slow, painful, and intermittent, had of late become more rapid. Their population was only about 200,000 when James II. was deposed, and William and Mary came to the throne. A quarter of a century later, when the House of Hanover came in with the accession of George I., the tables compiled for the Board of Trade, giving in detail the whites and negroes in the Colonies, showed an aggregate of 434,000. The number had thus more than doubled. In the next half century this again was trebled. By 1754, when the movements for taxing America were about to begin, there were 1,165,000 whites and 253,000 negroes, say, in round numbers, nearly a million and a half.

Then England which after a variable, but on the whole not unmotherly care of the Colonies, was now to enter upon that unhappy experiment of arbitrary taxation, presented almost as strong a contrast to the England we have seen in the closing days of Elizabeth, as did the thirteen Colonies of 1754 to the New World before Jamestown and Plymouth. In numbers it had grown from four millions to perhaps ten. In government it had passed from Essex to Newcastle and Bute. Landmarks on that long road were a civil war, a Commonwealth, a restoration, more discontent, a deposition, the choice of a new sovereign from abroad, and enormously increased power in Parliament. And now at last another royalist reaction, with revival of old prerogatives thru parliamentary methods by purchased majorities, was to precipitate a crisis in the American possessions. Meantime, the nation had enjoyed an enormous extension of commerce, beginning with the revolution in 1688, had prospered on Colonial trade, had won glory in foreign wars. Of its entire exports one-fourth was taken by its Colonies in America under the inspiring guidance of Chatham, England was rapidly coming to the front in both hemispheres; and this political leadership among the nations was followed by a sudden and enormous increase in national wealth.

But in the attempt now to begin for stretching the power of the Crown in the Colonies, one thing was forgotten. While the people that elected their Sovereign by Parliament had thus made their own representatives supreme, few realized that Americans could learn the lesson. It scarcely entered many English minds that those dependent poor relations might in their turn demand an equal authority for *their* representatives. Ministers at this date were indeed curiously ignorant of the Colonies. Distance, inattention, and misinformation, cooperated to produce political blindness. An acute English historian, explaining how subservient and prejudiced English officials in America misled their Sovereign, said that in fact "his own Governors, by their reports to him, wrote King George out of America." To them, and so easily enough of him, it seemed a natural thing that the Colonists should be content to buy everything from England—unreasonable that they should want to manufacture things for themselves; a matter of course that they should accept interference from England in their domestic concerns, and pay English taxes—disloyal and rebellious that they should hesitate.

And yet these uneasy Colonists had given splendid proof of their devotion. Unaided, they had captured Louisburg, then the greatest French stronghold in America, for the British Crown. They had responded to Pitt's calls, involving both men and money, far beyond reasonable expectations. Nearly two-thirds of Abercrombie's force on Lake George had been sent from New England, New York, and New Jersey. Another year Connecticut had five thousand men under arms to support the British campaign, and Massachusetts seven thousand. When disasters came, the feeble Colonists strained afresh their resources. Massachusetts sent out one in six of all its inhabitants capable of bearing arms, and Connecticut an equal or even greater proportion. While the war lasted that expelled the French from the Great Lakes and from the

Ohio, New Jersey taxed herself at the rate of a pound per head for everv inhabitant. Massachusetts levied on personal incomes at the rate of thirteen shillings and fourpence to the pound, besides land-taxes, poll-taxes, and even Colonial stamp-taxes. Connecticut, tho feebler in resources, was no whit behind. With such warmth did the Colonists support the great sympathetic Minister of the Crown, while he rescued Tennessee, Michigan, and the country of the Great Lakes, conquered the West, and conquered Canada. What might not have happened had Chatham but remained in power?

At this period the Colonies had been developing in America for about a century and a half. England might well have taken pride in the result, for the race that had sprung up amid the trials of the Western wilderness, tho different from the race at home, had lost few of its conspicuous virtues and had found others. The Colonists were, in the main, curiously orderly and law-abiding. They were temperate, moral, generally religious. The world had never seen such widely scattered rural communities with a more general diffusion of intelligence and a smaller percentage of labor—there were no rich and comparatively few poor. There was a nearer approach to equality of opportunity than older countries could show, and to personal equality when the opportunity had been wisely improved. There was no governing class; all took part in the Government, and the man who had been called to the public service, at the end of it dropped back naturally into his position, and instead of making laws, might again be making shoes. There were no palaces, but (away from the frontier settlements), there were very few hovels; and according to the standard of the times the mass of the population was probably as comfortably housed as in England, and with better surroundings, tho often in unpainted dwellings of wood. The proportion of considerable land-holders to mere householders was naturally larger than in older communities. Social life was everywhere simple, but not without dignity, or, in the rising cities, without grace. They had the English virtue of hos pitality, accompanied by the unusual freedom from reserve or constraint, which came with their environment. In a word, they were, in the main, like the best type of English middle-class rural population, but with the independence and alertness bred of the never-ending conflict with the wild country, wild beasts, and wild men. Chatham and Burke were proud of their Americans; it would have been well for Newcastle and Bute and men higher still, if at least they had understood them.

These last left such comprehension instead to a young Frenchman whom the world a few years later was glad to listen to. "Vast regions of America!" exclaimed Turgot, at the Sorbonne, in 1750, "Equality keeps them from both luxury and want, and preserves to them purity and simplicity with freedom. Europe herself will find there the perfection of her political societies and the surest support of her well being. But," Turgot added, in words that might have borne a profitable warning across the Channel, "Colonies are like fruits, which cling to the tree only till they ripen."

How that predicted end was hastened with such an English people as we have been describing, by efforts to abridge or withdraw rights on which all Englishmen insisted, may now be seen in the events of the next twenty years. The tendency was noticeable in the later Ministries of George II.; the policy was pursued with continuity and earnestness from the accession of George III.

In 1750 the construction of more iron mills in the American Colonies was forbidden, that there might be more demand for the English product. While the liberty to manufacture was thus hampered, the liberty to import slaves, under the guise of a right to trade between the Barbary Coast and the Cape of Good Hope was in the very same year extended specifically "to all all subjects of the King of England." In 1753 a new Governor was instructed to withhold from the New York Assembly the right it had always exercised of considering and voting annually the allowance for the support of the Government, and of examining the accounts. This Englishman (Sir Danvers Osborne), when he found these men of English blood and Parliamentary experience would not submit to such orders, was so horror-stricken at the situation in which he was involved, that he went out and hanged himself. The next year the Colonies were required to contribute to a general fund, and Halifax, by the King's command, proposed an American Union for that purpose, with a congress of one commissioner from each Colony to adjust the quotas. Ominous suggestion! Franklin had already favored the Union, but with modifications. He would have no taxation by Parliament, unless with ample representation in that body, and legislation on an equal basis for all.

A year later, in 1756, the British Commander-in-Chief was reinforcing the recommendation of various royal Governors for an Act of Parliament levying a stamp duty, a poll tax, and an excise tax on all the Colonies for a general fund, and, if any Colony failed to pay promptly, providing means for collecting by Royal Warrants of distraint and imprisonment. He was succeeded the same year by Loudoun, who, under a commission prepared by Chancellor Hardwicke, was instructed to make the Colonial Assemblies "distinctly and precisely understand" that the King required of them "a general fund to be issued and applied as the Commander-in-Chief should direct," and likewise to pay for the quarters of the soldiers. When an attempt was made, under this, to billet officers of the army upon New York City, the Mayor objected that it was contrary to the laws of England, the privileges of Englishmen, and common law. "Free quarters are everywhere usual," replied the Commander-in-Chief, "I assert it on my honor, which is the highest evidence you require. God damn my blood, if you do not billet my officers upon free quarters this day, I'll order all the troops in North America under my command, and billet them all upon the city myself. New York submitted unwillingly enough, and soon after Philadelphia, under similar compulsion, did the same. While the troops were thus quartered in the principal cities, the frontiers were left open to the Indians and the French.

With such conditions prevailing in America, George III. came to the throne in October, 1760. It took scarcely fourteen years more to precipitate the crisis. Early in 1761 the restrictions in the Acts of Trade were brought into court in Boston, and James Otis appeared to resist the call upon all executive officers and subjects of the Colony to assist in their enforcement. His arguments were cogent, but what startled alike the court and the community, was the defiant challenge he flung at the feet of the judges. He would sacrifice everything, he said, to "the sacred calls of his country, in opposition to a kind of power, the exercise of which cost one King of England his head and another his throne." The Court, quite staggered for the moment, postponed a decision, and the Chief Justice wrote to England. Meantime, the fiery orator was elected to the Assembly, and next year we find him declaring there that no taxes could be arbitrarily levied without the consent of the legislative body. That was the advantage, he said, of being an Englishman rather than a Frenchman; and for the Colonists he held that the rights of Colonial Assembly were the same as were those of the House of Commons for residents of England. To such outspoken tones did the policy of the Ministers carry the Colonists in the first two years of George the Third's reign.

By the first day of the next year (1763) it was admitted that the plans of the Ministry included the permanent quartering of twenty battalions on the Colonies after the peace in Europe, the Colonies themselves to bear the expense. It soon came out that the scheme went even farther, contemplating the withdrawal of the Colonial Charters, and the imposition of a uniform system of government thruout the Colonies. Two years were spent in talking about this revolutionary scheme, while the Colonists vehemently protested—the substance of their language being that their charters were inviolable, and that taxation by a Parliament in which they were not represented was tyranny. At last, the fateful Stamp Act was passed in

February, 1765; but could not be signed by the King, except by Commission. The pathetic fact was not known at the time that his reason was already unsettled. The patience of the Colonists was now but nine years from the breaking point.

The first effect of the Stamp Act was an outburst of universal opposition in the Colonies, and a concerted movement to paralyze its enforcement by extorting the resignation of every Stamp Officer. The next and even more ominous effect, was the assemblage in New York of a Congress containing duly authorized representatives of nearly all the Colonies. Against the opposition thus concentrated, the Act was powerless. Scarcely a stamp was sold, and after setting all America in a flame the Stamp Act was repealed, thirteen months after it had been passed.

Then was the moment, perhaps the last moment, when the hands of the clock could have been turned back. But the good will aroused in America by the repeal was wasted. Sixteen months later (June, 1767), the hour had struck, and the Ministers carried thru Parliament the bill decreeing the American Revolution. It was a bill reviving the effort to tax the Colonists by a distant Parliament in which they were not represented, for purposes about which they had not been consulted, and reviving it less than a year and a half after they thought the mistake had been acknowledged and definitely abandoned by the repeal of the Stamp Tax. The new bill, as if nothing had happened, imposed certain duties on articles imported into America, including a tax of three pence a pound on tea.

The Colonists instantly prepared to resist. Otis and other leaders counseled moderation, but submission was impossible. By a common impulse they decided on non-intercourse as the effective answer to an attempt to collect taxes on goods they were expected to buy. In New England, New York, and Pennsylvania alone, that answer cost British merchants a reduction of over two-thirds in their sale of the taxed articles in a single year. The movement spread till before 1770 it included all the Colonies, and as might have been foreseen, gave a wonderful stimulus to home manufactures. Within a year a single town in Massachusetts made eighty thousand pairs of women's shoes, and was selling them thruout the Colonies. The Ministry resentfully talked of transporting leading men to England to be tried for treason under an old Statute of Henry VIII. Then it sent more troops. Lord North, speaking for the Ministry and the King, said: "America must fear you before she can love you. I am against repealing the last Act of Parliament, securing to us a revenue out of America. I will never think of repealing it until I see America prostrate at my feet." One of the songs of the day, which were often doggerel, but sometimes poetry, was soon sung freely in the streets of Boston. It might have been taken as the Colonist's response to Lord North:

Come, join hand in hand, brave Americans all,
By uniting we stand, by dividing we fall;
To die we can bear, but to serve we disdain;
For shame is to freedom more dreadful than pain;
    In freedom we're born, in freedom we'll live;
        Our purses are ready,
        Steady, boys, steady,
    Not as slaves, but as freemen, our money we'll give.

The Government demanded that a Massachusetts Legislature should rescind its Acts, and dissolved it when it refused. The legislative functions of the New York Legislature had already been suspended. As the tension increased and there was more talk of using the troops, one Colonist wrote: "We cannot believe that they will draw the sword on their own children, but if they do, our blood is more at their service than our liberties."

There was, as the circumstances made inevitable, constant friction in Boston between the troops and the exasperated citizens. Affrays were not infrequent. At last came the inevitably petty officer who loses his head in an emergency. One of this species gave the word to fire too soon, and the people were maddened by what was called the Boston massacre. But in the spirit of conformity to law, as they understood it, so characteristic of the Colonists, they held a town meeting, opened it with prayer, considered the occurrence, and ordered that the soldiers concerned should be tried for their lives in the civil courts. It was characteristic again that such popular leaders as John Adams and Josiah Quincy, under a conviction of their duty as lawyers, answered the appeal of the officer in command, appeared in his defence, and saved him. More friction following, the troops were ordered to leave the town, and were actually sent to the citadel. Conflicts occurred in New York and elsewhere, with similar excitement.

Once again the Ministry wavered in a course that threatened such storms, and in March, 1770, repealed all its taxes on America, save that on tea. The non-importation agreements relaxed. New York, which had held to them more firmly than any of the associate Colonies, wearied of seeing its imports fall off five parts out of six, while the others profited by its abstinence, and so promoted a joint movement for resuming trade in everything but tea. By August, 1770, London was rejoicing at the return of American orders—and somewhat misconstruing them.

But, as if Heaven had ordained that every opportunity should be thrown away, a month later the fortress commanding Boston, built and maintained by the Colony to be garrisoned, as the charter guaranteed, by its militia under the command of its governor, was taken over by the regular troops, and the harbor of Boston made the rendezvous of all ships stationed in North America. The answer of Massachusetts to martial law was a commission to Benjamin Franklin to represent it in stating its grievances of the Ministry in London.

Events were now moving in too resistless a current for that benignant messenger of peace to check them. On a paltry question of exempting its Commissioners of Customs from taxation on their salaries, the Governor came again in conflict with the Massachusetts Assembly, and claimed for the Crown an unheard of power.

A few months later (January, 1772), South Carolina was aggrieved at having been induced to establish fixed salaries for the Judges if made permanent officials, only to have their own Judges forthwith removed, and an Irishman, a Scotchman, and a Welshman sent over to take these permanent places.

Two or three months later, Virginia felt outraged at having its efforts to restrict the slave trade thwarted by an instruction to the Governor "upon pain of the highest displeasure, to assent to no law by which the importation of slaves should be in any respect prohibited or obstructed." An appeal was taken to the Throne, and reached England just as Lord Mansfield had decided that a slave becomes free the moment he touches English soil. But not even that could secure a hearing for the Virginia appeal, or English consent to the Virginia law to restrict the slave trade.

His Majesty's ship *Gaspee* needlessly exasperated the Rhode Islanders by seizing live stock, detaining vessels, and making illegal seizures of goods. The Chief Justice gave an opinion against these acts. The Admiral overruled the Chief Justice, and said if the people of Newport attempted to rescue any vessel he would hang them as pirates. Thereupon, when the *Gaspee*, pursuing the Providence packet, ran aground, a few men from Providence and Bristol boarded her, overpowered the offensive lieutenant and his crew, set them ashore and burned the vessel to the water's edge. Commissioners were ordered to find the offenders and send them to England for trial. The Chief Justice refused to permit apprehensions for transportations beyond seas. Then it was proposed to take away the Charter of the Colony.

Thus every month seemed to add to the popular ferment, and to spread it from one Colony to another.

Meantime, what had it all been worth? During the progress of the *Gaspee* business the Stamp Office found that it had spent twelve thousand pounds in America to get a revenue of fifteen hundred, and even this revenue came only from Canada and the West Indies. That was what the Stamp Tax was worth. Ships and soldiers employed to enforce the law taxing tea had cost enormously, and the East India Company had lost the sale of half-a-million pounds worth of tea per year, while the total revenue from the tax on it amounted to eighty-five pounds. That was what the tea tax was worth.

So at last the East India Company begged for relief, and asked leave to export to America free of all duties. Lord North preferred another way. He held to the tax in America, but gave the company a drawback on such exports of all the import duties it had paid. The company was warned that this meant trouble, but Lord North would listen to no objections. He said he meant "to try the question with America." So it was tried. The tea was sent to Boston, New York, Philadelphia, and Charleston. Boston threw it into the harbor, December 16th, 1773. New York was ready to do the same, but adverse winds kept the ship away. Philadelphia, thru a town meeting of five thousand men "persuaded" the consignee to resign and the captain to take his ship and cargo back to London. Charleston "persuaded" the consignee to resign, there was nobody to pay the duty or sell the tea, and it rotted in the cellars where it was stored. And, finally, when a tea ship at last reached New York (April 19, 1774), four months after the Boston occurrence, it was sent back the next day, while eighteen chests of tea found in another vessel were merely thrown into the bay. Lord North's experiment was complete. Also the substantial union of the Colonies was revealed.

Franklin had been furnished with certain letters by the Governor and Lieutenant-Governor of Massachusetts, quite at variance with their public professions, and evidently designed to foment existing difficulties, and secretly provoke the Ministry to take yet more stringent measures against the Colony. He thought it right to send those letters to the Speaker of the Assembly. Ultimately, tho contrary to his expectation, they became public, and naturally aroused fierce resentment against the American-born officers, who were thus found deceiving and underhandedly conspiring against their countrymen, and bringing the military occupation upon them. The Assembly petitioned the King for the removal of the exposed Governor and Lieutenant-Governor, and Franklin was instructed to present the petition. Lord Dartmouth received it with his usual courtesy, but when it was referred to the Privy Council for a hearing, the whole case went off, not on the obvious guilt of the double-dealing officials, but on the alleged misconduct of Franklin in exposing them by showing their letters. Franklin, now venerable and distinguished thruout Europe, was kept standing at the bar while Wedderburne, the Solicitor-General, insulted and lampooned him for stealing or betraying private correspondence—and this from a Ministry that habitually violated the seal of every letter it cared for and could intercept in the mails! The Lords in Council roared with delight. The petition which all men knew to be true was dismissed as "groundless, vexatious and scandalous." But years afterwards, when Wedderburne died, the King he had thus served said: "He has not left a greater knave behind him in my dominions." The King he had opposed could not say that of Franklin, the faithful servant of his own country, the idol of France, and the admiration of the world.

The work to which every step of the Ministry had for years been tending was nearly finished. In March, 1774, Lord North carried thru Parliament a Bill closing the Port of Boston till the tea was paid for, and till the King should be satisfied of the good conduct of the city for the future. Burke and Fox made the debate memorable and splendid, and Lord Dartmouth showed signs of the desire to conciliate, always gratefully remembered in his relation to the Colonies. But the same Lord Mansfield who had decided that a slave could not exist on English soil, while the Ministry he supported was refusing to let Virginia limit the slave trade, now encouraged that Ministry to the uttermost, exclaiming, "The sword is drawn, and you must throw away the scabbard. Pass this Act, and you will be across the Rubicon." He told the truth more exactly than he knew.

General Gage, Military Commander-in-Chief for all North America, and now made Civil Governor of Massachusetts also, was sent out with four more regiments to close the Port of Boston, quarter troops in the town, bring the ringleaders in the late disturbances to punishment for High Treason, abolish town meetings, except for selecting town officers, appoint and remove sheriffs at pleasure, and give sheriffs so appointed the selection of juries. If the Colony had been already conquered, harder usage could scarcely have been proposed. But General Gage thought the conquest easy. He had assured the King that the people of Massachusetts "will be lions whilst we are lambs, but if we take the resolute part, they will, undoubtedly, prove very weak."

This time the answer of America was a Continental Congress. New York proposed it thru her "Sons of Liberty." Virginia burgesses, after being dissolved by the Governor, held a meeting elsewhere, adopted it, and asked Massachusetts to appoint the time and place of meeting. The Massachusetts Assembly was engaged in that business, when General Gage, hearing what was on foot, sent to dissolve them, but found the door locked. It was not opened until five delegates had been appointed to attend a Continental Congress in Philadelphia on September 1, 1774—about five months after Parliament had passed the Boston Port Bill.

A convention of towns in Suffolk County, Massachusetts, resolved that a king who violates the chartered rights of his people forfeits their allegiance, and it therefore refused obedience to the recent Act. One of the first things the Continental Congress did was to send Paul Revere to bear to Boston their warm approval of the Suffolk County resolutions. General Gage now undertook to arrest Adams and Hancock, as conspicuous leaders in this policy, and transport them to England for trial. He sent a body of regular troops to do it under cover of night. Warren started Paul Revere on a midnight ride, ahead of the British troops, to give the alarm. At Lexington, these troops came upon a body of minute men commanded by the grandfather of Theodore Parker, ordered them to disperse, and as they still stood, grim but undemonstrative, fired upon them. Eight fell, and ten more were wounded. Concord followed an hour or two later, the embattled farmers fired the shot heard round the world, and the war was begun. Franklin, seeing that there was no more hope in London, was already upon the ocean, returning to take his place with his own people.

I have finished the story. What remains is merely the fighting—the ghastly civil war between Great Britain and her sons.

But the contest was not really between the British people and their colonizing sons, and as a matter of fact both profited by the result. Even the fighting was largely between Americans and Hessians. The Ministry hired soldiers to carry on its war, because Great Britain did not readily furnish them. The actual contest was between what are now universally recognized as Anglo-Saxon principles of government, and a movement under the King of the day that would have set England back to the times of Charles I. The Colonists were inspired by the Protestant Reformation, and by the Magna Charta. The intellectual emancipation that came from the one and the fervor for personal rights that came from the other reached their natural development easier and quicker amid the untrammeled surroundings of a new world. Their triumph checked a reaction in England, and the British Government of the nineteenth century was distinctly more advantageous to the people, more glorious for the nation, and a greater beneficence to Europe and the world, because of this struggle with the Colonists in the last quarter of the eighteenth.

It used to be said that American histories of that period were unfriendly and unfair to Great Britain. Perhaps they were. At the close of this civil war with the mother country, Americans may have been somewhat in the temper of the Puritans after the Parliamentary wars, or of the Royalists after the Restoration. Certainly they had not reached that stage in the evolution of free government which enabled them, eighty years later, to close another civil war without a single execution, and with a speedy return to the defeated side of all its political privileges. It has even been said that our histories now tend to perpetuate an old unfairness and bitterness. If that were ever true, I hope and believe it is true no longer. At any rate, Americans, while not always agreeing, accept in the main with pleasure the work upon that period of recent English historians like the lamented Lecky. They are satisfied with the admirable history of "The American Revolution," on which the Right Hon. Sir George Otto Trevelyan is still engaged. And they are likewise content with the comprehensive report of what that Revolution led to, in the luminous pages of "The American Commonwealth," by the Right Hon. James Bryce, Secretary for Ireland. May I take the liberty, if not as an American, at least as a loyal and grateful son of Cambridge, to add and adopt the lines of the great Victorian poet, with which one of these Englishmen introduces his work:

O, thou, that sendest out the man
To rule by land and sea,
Strong mother of a Lion-line,
Be proud of those strong sons of thine
Who wrench'd their rights from thee.

When the war began, Edmund Burke estimated the population of the Colonies at from one-fifth to one-fourth that of Great Britain. White and black, it scarcely reached two and three-quarter millions. When the war closed there were 2,389,000 whites, and probably in all little short of three millions. Seven years later, at the first periodical census in 1790, there were nearly four millions. The war had cost the Colonists one hundred and forty millions of dollars. Eighty years later, they had another civil war which left them with a debt of 2,844,649,626 dollars, and with a population of thirty-five millions; and to-day their debt is reduced more than one-half (to 1,284,461,413 dollars), and their population increased to over eighty millions (seventy-six millions by the census of six years ago), to say nothing of the population of island dependencies. Then they formed a narrow fringe along the Atlantic coast, with a few frontier settlements breaking thru the gaps in the Allegheny range to the fertile valleys on its Western slopes; to-day they overspread a continent, and swarm in the islands of the sea.

That its echo was first heard amid the crashing of old institutions in the French Revolution cannot be doubted. It was certainly a factor in the subsequent rapid extension of popular rights thruout Europe, the broadening of citizenship, the freer participation of the people in their governments. As it stimulated liberty by its political development, so it stimulated material welfare by its inventions, its products, and its opportunities. We can scarcely conceive now of a world without American food and American cotton, without the American applications of steam and electricity, or without the American outlet for superfluous energy and superfluous population.

The people of the new nation held, as firmly as they had while Colonists, that there should be no taxation without representation, and they were some time in doubt as to whether there should be any representation without taxation. In several States ownership of a freehold of fifty acres or a town lot was necessary; in scarcely any could the suffrage be exercised without a return of considerable taxable property, real or personal. A reasonable degree of intelligence was also exacted and the illiterate were excluded. Far fewer offices than now were elective. The Judges were generally appointed, sometimes for seven years, sometimes during good behavior. Even the delegates to the Continental Congress were chosen not by the people but by the Legislatures.

There was no hindrance in learning trades; no limit to the hours of labor; no power to keep a man from working if he wanted to work and found work. The Colonists would have accepted unreservedly those golden words with which Clěmenceau lately thrilled the French Chamber of Deputies, but while accepting them would have wondered why he thought it necessary to say so obvious a thing in so solemn a way "*J'estime que tout homme, qui a besoin de travailler et qui trouve du travail, a le droit de travailler; j'estime que la société et les pouvoirs publics ont le devoir de lui assurer l'exercice de ce droit.*"

The result of it all is the marvel of modern history. It was an English prelate and scholar who said of it, "Time's noblest offspring is the last." What in the final analysis made the success?—for who shall say the splendid growth will survive, if what made it be lost?

Well, first of all it was made, as most successes are, by character. America in the making was intelligent, moral, religious, and religiously devoted to the education of children. It was desperately earnest. It was alert and industrious—almost without a class that only amuses itself. It was passionately attached to the personal rights of Englishmen. It had an inborn respect for authority and reverence for law. Its ancestors had been used to representative institutions for centuries, and it was thoroly trained in Parliamentary government.

And next the success was made by circumstance. The inefficient were sifted out—those left were a picked class. They were alone, in a wild but fertile and, as it seemed, boundless land. Opportunities opened on every hand; the time, like the climate, was electric, and there was an absolute freedom for individual initiative.

It is not sure that such a success could be won now; it is not sure that such a Government as they founded could be carried on now, if that character were materially changed. Is it even sure that the success could be maintained, if those circumstances were materially altered, and particularly if that fecund freedom of individual initiative should be destroyed, by the collectivist or socialist tendencies of the times?

But such a catastrophe is not to be thought of. Whatever may be the wild speculations of the hour, whatever the temporary variations from the historic course, no vessel that carries the English speaking races has lost its chart, on none has the compass gone hopelessly astray. The old headlights still burn. Inspired by the same traditions, led by the same instincts, these races in either hemisphere, in whatever zone, on whatever continent or island, will surely in the end hold fast to those ancient characteristics of a strong, free people, and so keep secure their place in the van of human progress.

U. S. Ambassador to England. WHITELAW REID.

[Opening Address at University of Cambridge, 1906]

The High School of the Future*

The secondary schools of to-day are the product of an historical evolution and the high school of the future can be intelligently discussed only in the light of its evolution out of the secondary school of the past. It is a fact not always appreciated by the general public that the secondary school is much older than the elementary school. It has not been evolved out of the elementary school but has been grafted upon it. It has its own independent history. The modern secondary school had its origin in these protoplasmic institutions in the Middle Ages, known as cathedral and monastic schools, out of which, later, developed the universities on the one hand and the secondary schools on the other. In England, out of these early monastic schools there developed what was known in the sixteenth and seventeenth centuries as the "grammar school," which was a classical fitting school for Oxford and Cambridge. It was this type of school which Shakespeare attended and in which he learned his "small Latin and less Greek." It was the school in which many of the leaders of the Puritans and the Pilgrims who migrated to this country, were educated. It was the kind of school in which William Penn received his education. England had no free elementary public schools at this time. The schools with which the early settlers of America were familiar were, on the one hand, this type of secondary school known as the grammar school, and on the other, the university for which they fitted. It was, therefore, perfectly natural for them to transplant these two institutions to their new home. Harvard and Yale and Princeton and Pennsylvania Universities were but attempted reproductions in the new world of Oxford and Cambridge. In like manner the grammar school of England was transplanted to New England and the other colonies. It was known in colonial times as the "Latin grammar school," the "Latin school," or simply the "grammar school"; but in all cases it was simply a classical secondary school, whose function was to fit students for admission to college. The Boston Latin School, the Hopkins Grammar School, at New Haven, and the Penn Charter School at Philadelphia, are among the best representatives of these early schools still in existence. The first two, even now, retain the old historical name. The term grammar school in its present sense, is of comparatively late origin. These early grammar schools were the secondary schools for over a hundred years of the colonial period. Their narrow course provided only for the needs of those students who wished to fit themselves for college and enter one of the so-called three learned professions. During the Revolutionary War a broader democratic spirit developed, which made itself felt in education, and there arose a demand for a broader secondary education than that furnished by the classical grammar school. This demand was also partly due to the fact that the district system, in New England at least, had seriously injured the grammar school by developing an illiberal spirit and destroying interest in higher education.

---

*Abstract of an address before the State Association of High School Teachers at Williamsport, Pa.

From the period of the Revolutionary War thru the early decade of the nineteenth century there developed a new type of secondary school, known as the academy. It was during this period that Phillips Academy, at Andover, Phillips Academy at Exeter, N. H., the Academy at Byfield, Mass., and, thru the influence of Franklin, Germantown Academy in Philadelphia, were founded. By 1850 about six thousand of these academies existed, with an attendance of over two hundred and sixty-three thousand pupils. In some of the early grammar schools tuition was free and in this sense they were democratic.

The academy was an endowed institution and charged tuition fees. It provided a broader course than the grammar school, ignored, in large part, the requirements for admission to college, developed strong English and scientific courses, not then accepted by the colleges, and often covered the work of the first and second year of the college. The academy developed an interest in higher education among the masses of the people, such as had never existed before in the country, and gave a broader education to large numbers of pupils who never extended their education any farther. The high grade of general intelligence found in the northeastern States, especially in New England, is due, not so much to the colleges, nor to the elementary schools, as to these academies.

Early in the nineteenth century, with the rapid development of the spirit of democracy, especially after the defeat of the Federal party, there grew up a demand for free secondary education in the larger cities, of a kind as broad in scope as that of the academy and at the same time free. This led to the evolution of the public high school. The first of these was the English high school for boys in Boston, established in 1821; followed in 1825 by the establishment of the high school for girls. While their development was slow until after the Civil War, within the last thirty years it has been very rapid and within the last fifteen it may fairly be called phenomenal. Since 1890, the rate of increase in attendance has been about one hundred per cent. per decade. The public high school is rapidly becoming in fact, as it always has been in law, a "common school," that is, a school attended by all the pupils qualified to profit by secondary training. The law, now in force in many States, providing not only for free tuition but also for free text-books, has removed almost the last barrier to the gifted children of the poor to secure a secondary education.

From what has been said it is clear that the secondary school is not a direct evolution from the elementary school, but is as old as the university. It had its origin as a fitting school for the university and not as a capstone of the elementary school system. This explains why it has always been dominated by the college and the university on the one hand, and why it has taken so long to adjust it, even in part, to the elementary schools. The public high school has within recent years, to a large extent, thrown off the domination of the college and secured a measure of independence. There is still much more of a gulf between the grammar school and the high school than there has ever existed between the high school and the college. The "bridging" of this "gulf" has been the subject of even more discussion than the threadbare topic in college faculty meetings of "College Entrance Requirements" and "The Relation Between Secondary Schools and the Colleges."

Not only the secondary school as an institution, but also its curriculum has had an historical evolution. The old grammar school had a narrow classical course. It consisted almost exclusively of instruction in the classics and in the rudiments of mathematics. The academy, as already stated, emphasized the so-called English and scientific studies, ignored in a measure college entrance requirements, and aimed to give a broad secondary education, regardless of the demands of the colleges. The so-called English Latin course, English course, and scientific course dates from the latter period of the evolution of the academy. With the evolution of the high school within the last thirty or more years, the academy has gradually narrowed its curriculum and devoted itself more and more exclusively to the work of fitting for college, and this is the present aim of those academies which were well enough endowed to maintain their existence in competition with the high schools to the present day. At the beginning of the evolution of the public high school, there were developed classical high schools and so-called English high schools, and for a considerable period the pupil had the choice between the two types of schools. Later, with few exceptions, each high school developed the courses already in part developed in the academy, and for many years the pupil had choice between the classical course, the English-Latin course, the English course, and the scientific course, to which were added later the commercial course and the manual training course. Within the last fifteen years, the elective system, which has so rapidly developed in our colleges, has been widely adopted in our schools and now a pupil has a choice not only between schools and between courses of studies but also to a large extent between individual studies. It is interesting to note that in this evolution the secondary schools of many European countries have stopped in the first stage; in others, as in England and France, with the second stage; while only in this country they have reached the third stage. Whether this last stage of evolution is going to be a permanent one, or whether in the end we shall confine election to courses or to groups of related studies, is still a debated, and, I think, a debatable question.

Up to comparatively recent years, there have been only two types of high schools, known as the classical and the English high school. To-day the public high school is developing in three directions and we are evolving three types of public secondary schools.

First, there is a type which combines the courses of the classical and the English high school and which has, thus far, not received a distinctive name, but which might, perhaps, be called the literary high school.

Second, there has developed within fifteen or twenty years, a new type of secondary school, commonly known as the manual training high school, in which manual training is made an integral part of the course of study and is taught mainly for its educational value. This type of school is gradually being developed into a technical school of secondary grade, in which not only manual training is added to the usual literary studies of the traditional high school, but in which at least the sciences and the mathematics and the drawing are taught in their application to mechanical industries. In short, these schools will in the future not be literary high schools with manual training added, but they will be technical schools of secondary grade, whose aim will differ from that of the literary high school very much as the aim of our higher technical schools differs from that of the college. This technical high school will serve (1) as a fitting school for the higher technical schools. (2) It will train foremen for manufacturing establishments, superintendents of shops, and in short, that large number of men who come between the engineer on the one hand and the mechanic on the other. (3) It will train men as agents for the sale of manufactured goods, with whom a knowledge of the process of manufacture is an important qualification. (4) It will give a general training which is probably not a whit less broadening than that of the literary high school and which appeals far more strongly to certain types of mind. Besides this type of technical high school for boys, there is also developing a technical high school for girls, whose aim is very similar; a school in which the vocational element is made prominent, but in which literary and scientific studies must hold a prominent place.

Third: There is now in process of development in our large cities a type of secondary school known as the commercial high school. This school is the outgrowth of the commercial course of the ordinary literary high school in past years, as the technical high school is the outgrowth of the manual training course.

It is likely that these three types of secondary schools will cover the field of secondary education for years to come and mark out the three directions in which the high school of the future will develop. In my judgment, the policy sometimes advocated, and in some cities adopted, of massing these three types of secondary schools together into one large institution, is a serious mistake. Manual training departments in literary high schools have not been successful; and the commercial courses in literary high schools, up to very recent times, have been failures. No man is large enough to master in detail the problems of these three different types of secondary schools and preside with intelligence over an institution covering the whole field. Each type of school will develop best and reach the highest degree of efficiency under a principal who thoroly comprehends its problems and a teaching corps whose interests in these problems is deep, intelligent, and united. These conditions never exist in any institution which combines the three types of schools. So long as a city is not large enough to need more than one high school, these three types of schools must, as a matter of course, be represented in this one school in the form of different courses, but when there is need of more than one high school in a city, it should be the policy to develop these three types of schools as independent institutions, centrally located, before there is any step taken to establish suburban or branch high schools. It is only very exceptional and peculiar geographic conditions that would justify in any given city a departure from this policy. The present is a formative period in the development of secondary schools in this country and we stand at the beginning of a new evolution of secondary education. We have it in our power either to direct this evolution into right lines or to misdirect it into wrong lines to the lasting disadvantage of our secondary schools. There is no problem of more far-reaching importance which our school boards will be called on to solve in the next ten years, than that of determining the right policy for the development of secondary schools in their respective cities.

Free public education has been demanded ever since the founding of the republic, on the ground that a free government depends for its own perpetuation upon the intelligence of its citizens. It has been argued that the State must educate and train up intelligent citizens and that education for citizenship should be the aim of schools supported by public taxation. These statements are universally accepted but they are very differently interpreted by different people and in different communities. In the view of some, education by the State at public expense should be confined to the elementary schools; there are those even who argue that it should be the minimum of the three R's. All over the eastern United States there are not a few people, some of commanding influence in their community, who are opposed to free secondary education. In every State west of the Allegheny Mountains, education by the State has been interpreted to mean, not only free elementary education, nor free secondary education, but also free collegiate and university training; and it seems rather singular that while the Western States have for many years had their free State universities, there should still be those in the East who question the policy of free secondary education.

The question may fairly be asked, whether the high school of the future, in addition to broadening its courses, will extend these courses upward and possibly downward, including at least two years of the work now done by the college and possibly the work of the upper two years of the elementary school? If this extension should be made, we should evolve a secondary school somewhat like the type of secondary school which prevails, with minor modifications, all over the continent of Europe. As this type of secondary school with an eight or nine years' course meets the needs of all the nations of modern Europe, differing as they do radically in race, in language, in government, and in institutions, social, religious, and political, it seems not very reasonable to maintain that the present organization of secondary schools in this country, as to length of course of study, is the only type which meets the needs of our people. It is possible that in the larger cities the public high school will develop upward until it will fit directly for the professional school and the university; and the college, as an institution coming between the secondary school and the professional school, will have to drop out. This will bring the future high school of the large city in competition with the college exactly as the present high school was brought into competition with the academy. As high schools of this type cannot or ought not to be developed except in cities of very considerable size, there will still be wide room for the small college thruout the country. Indeed, I believe that the day of the small college is not in the past, as many seem to think, but in the future. What the small college needs is more endowment and better equipment to do strong work. Its size is an advantage instead of a disadvantage. What we need is a large number of well-endowed small colleges thruout the country, and a limited number of strong universities in the large centers of population. This is the direction in which it seems to me, higher education ought to develop in the future. Indeed, several of our large cities are even now developing institutions, some of them of superior grade, which are doing collegiate work. New York City has its city college for boys and its normal college for girls. Baltimore has a city college which is a college in name and partly in fact. The central high school of Philadelphia is gradually developing into an institution of collegiate grade.

THOMAS M. BALLIET.

New York University School of Pedagogy.

Pedagogic Discussion

[For discussion in connection with the study of Chas. B. Gilbert's article on Arithmetic, published in the October number.]

A Shorter School Day

THE harmfulness of prolonged mental and nervous strain upon children during the period of most rapid growth, is attracting more attention as the years go by. The period of childhood is one of rapid and extensive changes in the physical and mental constitution of the child. The period of adolescence is frequently reached in the elementary school. In fact, few children reach the secondary school before the changes of adolescence begin. This is a crucial time in the life of the child, and the burdens during this time of rapid physical and mental growth should be distributed as evenly as possible, that great harm may be avoided. At a time when the subject of overloading frequently fills the public prints and the verdicts of scientific men tend constantly to sustain those who protest against the strains imposed, it seems fitting to consider whether a better arrangement of the time cannot be suggested than that which has secured the sanction of long custom.

At present, the custom of having a session of five hours a day for five days a week, obtains quite generally. The arrangement of the time varies in different places, the length of the noon recess being sometimes longer and sometimes shorter. As the noon recess varies, the time for dismissal varies with it. But the fact remains that the total length of the day's work is about five hours, and is longer frequently for the unfortunates whose path thru school is not one of ease.

Even if the total time consumed, measured in hours, is not too great, the distribution of the work is such that the child's right to play, to happy life, to physical and mental development, unaccompanied by harm to his future health and life, seems imperilled. A day so arranged that little time is left for any thing outside of school life, unless sleep is robbed and play time sadly cut, does not seem ideal. The strain of school life is recognized by the omission of Saturday as a school day. To overstrain for five days and then to leave a whole day as well as the Sabbath for recuperation, seems illogical. It would seem wiser to distribute the strain of five days over six, and to allow the child to put into the other five some of the play and rest that he is now obliged to crowd into one.

As a remedy for the present conditions, suppose we plan a school day on one of the following bases: Let the school begin at nine o'clock and continue until one, with an out-door recess of twenty minutes. This would give us, continuing the plan on Saturday, a school week of twenty-four hours total time, or about twenty-two and a half hours, net. Or, suppose we begin the session at eight-thirty o'clock and continue to one, breaking the time at ten-thirty o'clock by an out-door recess of thirty minutes. This would give us a school week of twenty-four hours net, or nearly one hour more than we get at present by holding school on the five days only, but holding school in the afternoon. If there is no desire to gain this extra time, the Saturday session could be terminated at twelve, instead of at one.

Either of these plans would give, apparently, certain advantages to pupils, teachers, and parents. Unless it is worth *most* to the pupils, it is not worth considering. Anything that can be said in favor of the plan from the standpoint of the teacher, or from that of the parent, should be tested as to effect on the pupils' welfare. In general, it may be said, without fear of contradiction, that anything that is for the real interest of the teacher, as a teacher, is also for the interest of the child. Nothing can be done for the welfare of the teacher without reacting favorably on the child.

The child finds itself at present in a situation something like the following: It may not be true of the country child to the same degree, but it is certainly true of the city child in most cases, and he can stand the strain less safely. He rises in the morning, often tardily, eats his breakfast with the fear of being tardy at school, and hurries away. School keeps him occupied until noon. The noon recess is consumed with getting dinner or lunch, with errands or home duties, perhaps, and little time is left for care-free play. The afternoon session takes the brightest and best of the sunshine, and he is released, during most of the school months, at a time when little daylight is left. There is little time remaining for play, and there may be errands and work to do that prevent the use of that time for recreation. Supper over and he is prone to play on the street at dusk in an attempt to eke out the scanty play time of the day. He belongs in bed in the early evening, but the desire to play and the demands of home study are in opposition. Both study and play have had a poor chance for satisfaction. He has lived a day that is too full for a growing child, and we cannot wonder that a growing and delicate child soon shows the strain. Crowd upon him dancing and music lessons, and the chances for a broken-down nervous system are excellent. This may seem over-drawn, and in many cases there is no doubt that it is, but it is a true picture in many cases, and we have only to see the lack of robust health among our elementary school children to feel convinced that there is something wrong. Other causes are at work and should share the responsibility, but we cannot control these, while we can control the matter of school pressure along the lines indicated. The remedy seems the only one available at present, for the press and the public ever demand a higher standard of training, and all of this means time and pressure. The teachers are helpless.

Release the child at one o'clock and note the difference in the conditions. He is free for twenty hours, with several hours for sunshine and out-door sport. Luncheon out of the way, and the time is free for ball, or skating, or other sports appropriate to the time of the year. He is care-free and can be oblivious of burdens for a few hours and yet have time remaining for all the demands that parents are likely to make upon him. Here is the time for the music, for the dentist, for errands that often mean absence at present, for "staying with the baby while mother goes on an errand," and all the excuses that besiege us in our daily efforts to raise the standard of attendance. The library or the gymnasium may see him for a time, or even as a regular attendant, and his whole future may be changed for the better by the opening up of these opportunities that are now denied him, to a great extent, or are accessible to a few only who are favorably situated. This opportunity to use the library privilege will appeal to many a teacher who feels now that a source of immense enrichment is denied to her pupils because the school hours and distance makes the general use of the library an impossibility.

It seems possible, also, that the need of using the children to assist in the support of the family, which fact so often interferes with the attendance of the child at school, might here be reconciled with the right of the child to an education. With such a proportion of the day left unbroken, it is conceivable that the demands of education and those of the family purse might be reconciled. No one could pretend that this would be for the highest interests of the child, but schooling with work would be better than work without schooling. In the afternoon the demands of manual and industrial training could be met. An hour or two for one or two afternoons a week spent in fascinating occupations would meet the need and would impose no hardships on the child. In fact, the work would be hailed by most normal children as a chance to gratify the cravings of their nature. Taught properly it would not be irksome and would not be a drain upon the nervous strength. Of course, the work would be in the hands of special teachers and would not be a tax on the regular staff.

It is also conceivable that the work done under this plan would be done better, as the absence of the long break between Friday and Monday would tend to develop habits of steadier work. At present the momentum gained during the week is frequently lost by the interruptions of the holidays. It is probable also the work done in the shorter session would be done better, as the children work best in the morning, and the rest and refreshment of the free afternoon of the day before would bring the children to their tasks in a mood favorable to work. The prospect of early release would also be a stimulating factor.

On the whole, it seems as if the life of the child would be a more natural one and that his health and mental development would be furthered.

The teacher's side of the question is also important to the pupils, for, as said before, everything that affects the teacher favorably reacts favorably upon the child. The teacher's day is a busy one. She is early at her desk or in the school-room and the day is crowded full of the most intense nervous strain. The recess period and the noon hour seldom free her very much. The afternoon has its own heavy load and the closing bell seldom allows her to leave the building with the promptness that other classes of workers leave their occupations. The evening meal is eaten in weariness, and, very often, the time following is spent in work for the morrow, or in finishing the tasks of the day. The time that should have been spent in rest and outdoor life has been spent in the correction of papers, making of records, helping pupils who needed assistance, or in planning work for the next day. Saturday is frequently used for clearing up the fag-ends of the week's work. A change to the plan of six days of four hours would leave six long afternoons for the use of the teacher. After luncheon, the time would be at her disposal to arrange in the way that seemed wisest and that would best fit her for next day's work. There would be the opportunity for outdoor life, and for meeting her friends in a social way. The demands of her work would no longer mean isolation from the inspiring sides of life. She could forget care for a while and yet have time left for the necessary work of the school before the school again summoned her. The afternoon and the evening would allow a division of time that would care for all interests, and all are important to the teacher if she is to be an inspirer of youth. There would not only be time for social and recreational life, but, also, for broader and deeper study. The libraries would appeal to her more strongly and in college towns there would be college courses that would be adapted to her time and strength. These openings would be a great source of enrichment.

As less work would be attempted in a day, the strain would be less severe and the life of a teacher would be a more sane and natural one. It is conceivable that, under these conditions, the profession would become more attractive, and that more and better candidates would appear, raising the standard of the profession as time went on. The social position would certainly rise with increased opportunities for culture and social intercourse, and the teacher would occupy a place that has never been her's in the past. Living a more inspiring life, the teacher would do her work better. Sound nerves and ampler time for preparation would mean much for the children under her charge. The day's work would leave her less exhausted and each day would see a gain in results. With teacher and pupils alike benefited by the change, the work of the schools could not fail to be improved to a marked degree.

Parents would be appealed to by the plan in most of its aspects, for it is safe to say that normal parents approve anything that they feel is for the benefit of their children. Viewed from this standpoint any objection that might be raised would be met. Certainly the children would have a better attitude toward school and a frequent source of friction at home would be eliminated. Few children would go "unwillingly to school." The child would no longer feel that the school claimed all of him and all of his time for five days a week. It seems as if he would willingly give up half of his Saturday to receive five afternoons in exchange. There would be time for the outside interests and parents would feel less concern lest the health of the child be overtaxed.

Some objection might be raised. There is the long-established custom under which most of us have grown up. Yet private schools do not follow this custom in most cases. The advantages enumerated ought to appeal to children, parents, and teachers if time is taken for a frank consideration. The time taken on Saturday is compensated for at least three times over by the time given on the afternoons of the present school days. Some mothers, too ready to give the care of their children over to some one else, might object to having their care during the afternoon, but such parents must be relatively few in number. At the most, it is simply a vacation condition in a mild degree. A possible objection is that two luncheon hours would be made necessary where some members of the family, coming home from work for a midday meal, might have to be cared for, while the children from school would have to be provided for an hour later. But this objection would obtain in comparatively few cases, and in few of these would the parents feel that the disadvantages outweighed the advantages. Of course children could not be used to carry dinners; this would be a decided advantage to the child and would protect him from what is frequently a form of family selfishness, which sacrifices the child to the desire of father, or brother, or sister to have a warm dinner, while other people, who have no one to impose on, go without.

The objections noted all seem very trivial, yet there is one that cannot be put aside lightly because it is founded on religious scruples. Many who keep our Saturday as their Sabbath would feel that such a plan ought not to be adopted. In thickly-settled communities, the two plans could exist side by side, certain schools being designated as "five-day schools." Indeed, certain rooms in a building might be so set aside, or certain rooms in a district, if the enrollment in the building was not sufficiently large to allow such a plan to work.

Another way around the difficulty would be to so arrange the program that the Saturday work would be prepared *at home under special permission in special cases.* On Monday, the work of the class would be arranged to test the Saturday work as well. Such absences would have a tendency to drag down percentages of attendance, but schools do not exist for statistics, but to educate boys and girls.

From all standpoints, it seems that the plan would be for the highest interests of the boys and girls who are being prepared to take their places in the world about us and whose interests are paramount in every educational question.

Providence, R. I. LEONARD HERBERT CAMPBELL.

College Entrance Requirements in Modern Language

For some years I have been of the opinion that the secondary schools are trying to do too many things and too much in the time at their disposal. The young people are subjected to a stuffing process which is not conducive to proper digestion. An unhealthy condition of mind is the result. Lack of accuracy and sureness, slovenliness and superficiality, pretentiousness and self-delusion are found where there should be positiveness, neatness, thoroness, and the consciousness that the circle of perfection is not yet completed, that there is still much to be learned, much that is worth striving for. The want of these qualities cannot but produce undesirable effects upon the man. Our shortcomings have not escaped the eyes of visiting experts from abroad. I do not refer to those visitors who, on coming to our shores, are at once taken in tow by superintendents, principals, and other officials, and regaled with our exhibitions, our buildings, our opening exercises, our schools on parade and in holiday attire. I have in mind the thoughtful critics who spend months in going about quietly and unostentatiously studying educational institutions and conditions—many of these, while praising our work along some lines, are unanimous in the judgment that we are constantly trying to do the impossible and that in consequence many things are not well done, or, still worse, that we pretend and claim, on paper, to do things which, in reality, we do not accomplish.

It cannot be denied that we have in this country discovered methods of doing more work in a given time than people are accustomed to see being done in Europe. We certainly do succeed in getting more manual labor out of our workmen than is done anywhere else. Teaching, however, cannot be classed with manufacturing; the methods are necessarily subject to different laws. Pupils cannot be separated into different parts to be handed out to expert piece workers. We departmental teachers, to be sure, are piece workers, still, for the time being, at least, each one of us must get the whole boy or girl, and different parts of him or her cannot be worked upon at one and the same time by a number of workers. Nor are we as yet willing to follow factory methods by teaching our children only one thing until that is completed before taking up something else. Our endeavor is to give our sons and daughters a tolerably well-rounded education, and the colleges and universities still demand for entrance a variety of seemingly heterogeneous subjects. Whether or not this number of subjects required at present is too large, is a question for educational philosophy and not for educational practice to decide, and, tho highly important, it does not concern us at present. The question with which we have to deal relates to the quantity and quality of work asked of us in our respective subjects. I feel very strongly on the point that we have no right to ask of our students work which the results show cannot be done, or if done, is only very imperfectly and unsatisfactorily done.

Less than sixty per cent. of all modern language papers submitted last June—over 2,400 in number—reached a passing mark of sixty per cent., and by far the largest number of these were in the *C* category, *i. e.*, between sixty and seventy-four per cent. Of nine hundred intermediate and advanced papers only 395, not quite forty-four per cent., obtained that mark. Again, a large majority was in the *C* group, there being in French only one paper in the *A*, and sixteen in the *B* groups; in German only seventeen in the first and eighty-six in the second.

Supported by these data, I believe I am justified in saying that there is something radically wrong in our modern language teaching. It may be that the teaching is poor, but it is evidently the best we now have, and it seems hardly just to punish our boys and girls for the shortcomings and the inability of their teachers. Still, I do not admit that the teachers of these subjects are alone to blame for the condition, nor even principally. It must not be forgotten that the modern languages still occupy a very peculiar and, in a sense, unfavorable, position in the secondary curriculum. Furthermore, they certainly have a most difficult task in being required to prepare for an examination conducted by any other person than the class teacher himself. Not only is there no unanimity as yet among modern language teachers and educational leaders as to the true purpose and aim and methods of these branches, but there exists also no such well-defined road of reaching the aim as there is in every other subject.

The pabulum with which a pupil is fed in mathematics is a quantity allowing of accurate measurement and analysis as to its ingredients. The elements of physics are grouped around a definite number of experiments which determine its exact range; the classics lead their march thru a certain number of books, and after the inflections and the functions of cases are taught and studied, an expert or well-equipped teacher can proceed in his work almost in scientific fashion. At any given time the teacher or examiner knows—or if they do not know, they can find out from a dozen books—whether certain rules of syntax or certain words, phrases, or idioms, are new or have already occurred often enough to warrant the assumption that they are a part of the pupil's stock of knowledge. Even in the study of the vernacular and its literature certain books agreed upon, from time to time, form the basis of the work to be done, in addition to the mechanics of the language, which in itself is again a fixed quantity. But outside of the forms and elementary rules of grammar which, of course, are the same and ought to be acquired by the pupil, whatever the aim and the method of the study, none of the above-mentioned advantages accrues to the teaching or examining of modern languages. Thus, for instance, when the modern language teacher is told that for the elementary examination he is to teach the ordinary words of German or French, or when the examiner is to set questions containing only such words, they will soon find out that this range of ordinary words in a modern language is too wide for any pupil to encompass; the teacher has to select, and the pupil's vocabulary must, to a large extent, be determined by the text-book and the connected reading supplied to him, while the examiner is almost totally at sea when he steps outside of the most ordinary words.

Once upon a time I wrote a text-book and entertained the foolish hope of having certainly lived up to the requirements in this one direction. I had consulted several well-known word lists, but when the book lay before me in print and the next examination paper was issued, I found to my dismay that I had forgotten several of the so-called ordinary words appearing therein.

In the intermediate and advanced work this disadvantage becomes naturally even more intensified, and the enlarged vocabulary depends almost entirely upon the books read. Another perhaps less serious disadvantage lies in the fact that the books from which extracts for intermediate and advanced courses may be taken, vary so largely in style and content. Objections are raised to the setting sight passages from Ovid, altho style and vocabulary differ only slightly from Virgil; yes, even Nepos and others, tho writing historic prose is much simpler in content than Cæsar or Cicero, are objected to, unless teachers are given time to read extracts from them with their classes, and to explain their peculiarity of style.

I make mention of these facts, not so much for the purpose or in the hope of entirely removing them, for perhaps they cannot altogether be eliminated, but principally for the purpose of showing that the modern language student faces a more difficult, because less indefinite, problem than students of other subjects, and that a part of the inefficiency of results in college entrance examinations must be charged to them. Only a canon or a standard of reading matter, somewhat similar to the periodically changing canon in English, could remove it, but the adoption of such a canon in modern languages is not so easy and, perhaps, not so desirable. Still these disadvantages of modern language teaching are not wholly responsible for the poorer showing in results. I think a larger share is directly due to the examinations themselves. I maintain that the German examinations in all grades—I restrict myself here to the German because I am naturally more familiar with them, altho, on the whole, my remarks apply with equal force to French—are not what they ought to be, and their present form reacts unfavorably upon the teaching of these languages. There is an improvement noticeable in the latest papers, especially of the elementary grades, but it is an improvement rather in quantity than in quality, and the questions do not adequately test and point out what in the first two years, for instance, can and ought to be done.

The elementary examiner sets two sight passages taken from some author. While these passages in themselves may not be too difficult—sometimes they are—the very fact that so large a proportion of the paper is given to sight translation* forces all schools preparing for such examinations to give an undue amount of time and attention to this translation of connected reading, and, above all, to begin it too early. Of course, the ability to read is paramount. Within certain limitations connected discourse may even be taken up from the very first—tho I do not believe it best. But reading in its true sense, the pleasurable and profitable reading of a story or book, can only be undertaken after the necessary foundation has been laid. Here it is where, in my judgment, the entrance examinations as framed at present most grievously err and misdirect and mislead us teachers and where we, therefore, do almost irreparable damage. In order to rush to some well-known short story, or to some book with a famous title—Cæsar being taken up so early in Latin largely for the same reason—we slur over the elements by really only reading them to and with our pupils, instead of teaching, studying, and drilling them. Thus we delude ourselves by the belief, or glory in the false claim, that our pupils are reading German or French literature, altho they are not yet able to distinguish between a long *s* and an *ſ* in German print, or to give correctly the present forms of *avoir* and *etre*. This is not only a delusion, it is worse; it is a positive harm, for the pupil who at this stage of progress, is led to believe that he knows enough to take up literature, is usually lost for accurate and exact work. In order to do his daily task he must learn to guess or to do worse. Once started upon this road he will continue to guess when he is a senior in the high school, or a freshman or a sophomore in college, and for all that, possibly, for the rest of his life. It is singular, but it is certainly my experience, that when a so-called advanced student becomes conscious and tired of his floundering insecurity and tries to redeem himself, he rarely succeeds. It seems that in the study of modern languages, as in anything else, the elements ought to be well attended to from the beginning, and that it pays to make haste slowly.

---

*I am told that at certain examinations a pupil might have obtained a passing mark of sixty per cent., if he had done nothing else but correctly translate those passages.

When I state a maxim that is as old as the hills, it does not follow that the manner of applying it must be equally old and antiquated. There is no need of turning right about and of killing all the interest a pupil might bring to his new study by feeding him on nothing but dry grammatical forms and rules, and by depriving the work of life and charm. This is not the only alternative. The subject can be made interesting in many ways. But all interest infused must primarily subserve the purpose of providing the pupil with the absolutely indispensable facts of speech, without which there is no language, and of furnishing him with positive possessions. Nothing is more gratifying to a person than to know that he knows certain things well and that he can call certain things his own. If a pupil is allowed to get these things, he will soon have more than caught up with his friend who has taken to reading so much earlier, and the books *at* which the latter translated, he will read with pleasure and profit. What is still more important, his work will become easier as he goes on, while early acquired habits of superficiality and lack of exactness will increase the friend's difficulties as he proceeds, and will cause him loss of appreciation and, finally, interest in the work. Thus, what seemed a gain at first turns out to be a loss in the end.

In connection with this matter of reading and the prominence attached to it in college entrance examinations, I also want to say that from a real educational point of view no paper under seventy-five per cent. is actually satisfactory. As I have already intimated, a candidate may betray the crassest ignorance of the structure of the language, and yet may get thru by reason of lucky guesses and specially fortunate circumstances. This ignorance and lack of thoroness and accuracy manifests itself most prominently in what is called prose translations. They are notoriously and preposterously poor. I know that anything that looks or sounds like German or French must often be accepted and given some sort of credit, if the percentage of failures is not to be made still larger. The elementary prose composition of last June was certainly as simple as could be desired, and if the tenor of the previous papers had allowed or demanded a proper and correct emphasis of grammar study and of concomitant prose work in the preparatory school, the results ought to have been exceedingly good. But I repeat, to attain this accuracy and correctness, it is necessary to preceed slowly, especially at the beginning, and to sacrifice—tho we may expose ourselves temporarily to the charge of old fogyism and of being behind the times—that foolish and blatant claim that we can prepare our pupils in the course of a year's time to read Schiller's Tell or Freytag's Journalisten, as is done in many schools not a hundred miles from New York. Indeed, I question the wisdom of reading much connected discourse of any kind that is not prepared *ad hoc*, at least during the first year and a half. It is not literary style or literary mastery that is primarily needed at the beginning, but rather reading matter of sufficient interest, properly graded and arranged, to the end of drilling the learner, consciously and unconsciously, in the forms he has been made familar with, and to acquaint him with a useful and usable vocabulary. Such texts are, in my opinion, best provided by the regular text-book, and not by short stories, dramas, and comedies which the author has certainly not written with a view of introducing the foreigner to the mysteries of German and French. The number of pages of required test-reading ought, therefore, to be reduced.

In last June's intermediate requirements, both the French and German sight-passages were, in my judgment, too abstract and philosophical, and therefore beyond the pupil's horizon and mental grasp. Even if we admit that such writings might properly be read in the class and that the vocabulary is of the sort which the pupil must learn to grapple with in the third year of his work, sight translation set for examinations ought never to contain such difficulties either in thought or vocabulary. Frequently an unusual word or phrase, or even ordinary ones employed in a metaphorical or idiomatic sense, will disconcert the student, or his mistranslation will make the whole translation appear ludicrous, if not worthless. If a pupil once attaches a wrong meaning to a word upon which much of the thought depends, he is apt to try to force the rest of the text into harmony with this misconception.

I have no accurate data, but I believe, and I am supported in this belief by others, that owing to this difficulty of intermediate and advanced German, the number of candidates is not as large as it should be. In spite of many four years' modern language courses in the New York and neighboring high schools there were, all told, only 119 candidates for advanced modern languages. I furthermore hold that the number of successful candidates in intermediate and advanced German—and even elementary German—tho small, is made as large as it is by students who get their vocabulary and general understanding of German not principally in school but at home; I refer, of course, to German-Americans. Where ability to read and translate fluently, and where facility of expression in the foreign idiom form the burden of an examination—as in the case of the intermediate and advanced—this class of students has, of course, a decided advantage. But it is wrong to build the standard upon the home advantages of the pupils. On the other hand, the class of students thus favored by the examination is often more deficient in other directions and more wofully lacking in accuracy than students who do not enjoy the aforesaid extraneous aid, and fail. In reality, therefore, neither one of the two classes is fairly dealt with by these examinations and the preparation preceding them. Of one too much is expected, and the other does not get what he most needs.

In the foregoing remarks I have been endeavoring to point out that the college entrance examinations in modern languages, according to my point of view, ought to be modified in two directions. In the first place, they ought, in the light of past experience, to set a standard which can be reached by a larger number of our pupils. In the second place, the examination questions ought to be so framed and adjusted that they will react advantageously upon secondary teaching by encouraging accuracy and thoroness, and by making for scholarship as well as for practical uses. To this end I should make the following recommendations:

1. The passage or passages set for sight translation in the elementary paper ought to be short and easy, presupposing quantitatively less practice of connected reading. They ought never to be valued at more than from forty to fifty per cent. of the whole paper. They ought to present a complete story, or a thought complete in itself, or, if that is not possible, a heading might be attached, as is the custom in many Latin and Greek papers, in order to give the student a clue as to content. The passage ought to be chosen, or, even better, ought to be made with a view of illustrating common points of inflection and syntactical rules which, owing to their frequency of occurrence, must have been abundantly explained and practiced in the course of two years. The vocabulary of such extracts or passages must be simple, and when there is doubt on this point, the English equivalents ought to be given. If these conditions are met, the strictest accuracy ought to be expected, and no slipshod work or guesswork ought to receive any credit.

2. The grammar work in its technical and applied forms ought, in the elementary paper, to receive no less than fifty per cent. of the value, and of this the major share ought to be given to applied grammar, *i. e.*, to prose composition and to the various devices of illustrating grammatical facts, such as applying correct

endings to articles, adjectives, and nouns, or recasting paragraphs by changing the tense or person of verbs, or putting direct speech in the indirect discourse, and the like. Quality and not quantity ought to be measured. When the thing asked for is missed, no credit ought to be given to the mere mechanical part. Vocabulary ought to be freely supplied, if necessary, as this part of the examination is principally concerned with forms.

3. The sight passages set for translation in intermediate and advanced German and French, while naturally of greater difficulty in style and vocabulary, must offer no difficulties in the way of allowing the pupil to get readily at the thought content. Even here it might be preferable to give paragraphs which are a whole in themselves, or a headline might be given to steer the pupil. Words or phrases that are not common, and upon which hinges the meaning of the passages, ought to be given: rather do too much in this direction than too little.

4. In the intermediate paper prose translation ought not to be exclusively connected discourse. If it is, it ought to be arranged to suit the purposes, or a part of it ought still to be short sentences to illustrate the more important, but not so elementary, grammatical facts. In both parts vocabulary might freely be supplied.

5. The free composition usually demanded in the advanced paper ought to make no demand on the pupil for knowledge of German or French literature; the few themes that can be set can be prepared in the most perfunctory fashion by a shrewd teacher, and prove nothing whatever as to the pupil's power of using the foreign idiom in free composition. Nor ought a high school pupil be asked to write in the foreign tongue on a subject, the content of which would cause him much thought and reflection if he had to write the same heme in English. If a composition is insisted upon, the subject matter or the lines along which he is to treat it ought to be furnished him.

6. In addition to these recommendations, I should suggest one radical departure from the customs of the past. I think that

one special paper in technical and applied grammar ought to be set for intermediate and advanced German, somewhat analogous to the one in Latin and Greek. This would, in my judgment, of necessity, prevent this part of language study, which is surely necessary for successful work, from being entirely neglected for the other part demanding our chief attention, and would insure better scholarship all along the line. CARL F. KAYSER.

New York City Normal College.

Philadelphia Raises Salaries

Philadelphia has raised the salaries of its elementary teachers fifty dollars all along the line, and thus does something to wipe out the stigma of paying its teachers less than any other large city. Teachers hereafter will receive $520 their first year, instead of $470. The old provision for an annual increase of thirty dollars for the first ten years of service, will remain in force.

The new five mills school tax provides about $200,000 more for the schools than they have had heretofore, the total sum for school purposes for the coming year being in the neighborhood of six and one-quarter millions. The increased funds gave opportunity for the raising of salaries. The increase will affect more than three thousand six hundred women, and about one hundred and sixty men.

The appropriation for salaries for the past year was a trifle over $3,700,000, out of a total for school expense of somewhat more than six million dollars.

The Board also appropriated $50,000 to create a teachers' retirement fund, on condition that the teachers contribute an equal sum. There is no doubt of the willingness of the teachers to contribute their share. Probably they will raise it on the basis of a levy of one per cent. of the annual salary of those who have taught less than ten years, and two per cent. on the salary of those who have taught longer than that. The fund of $100,000 will be sufficient to provide for superannuated teachers.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

CIVICS.

1. Mention two county officers and two town officers who are required to give bonds. Why are the bonds required?

2. State how the following are chosen: (*a*) the postmaster-general of the United States, (*b*) the postmasters of first class offices, (*c*) the postmasters of third class offices.

3. Tell how the State Commissioner of Agriculture and the State Comptroller are chosen and mention an important duty of each.

4. Which county official is required to suppress disorder and maintain peace? In case of an emergency, from what two sources may assistance be obtained?

5. What is a mortgage? Mention two kinds of mortgages. Where is each recorded?

6. Mention three personal rights guaranteed by the State Constitution to all individuals of the State.

7. Under what circumstances and in what manner may private property be taken for public use?

8. Which is the highest court in the United States? How are the judges of this court chosen? What is their term of office?

9. What officer presides over the United States Senate? Give the compensation of this officer and the constitutional provision regarding his right to vote on legislative questions.

10. Give the procedure of electing a president when the presidential electors fail to make a choice.

ANSWERS.

1. County treasurer, sheriff. Supervisors, collector.
To secure the county or town against loss.

2. (*a*, *b*) By the President with the consent of the Senate.
(*c*) By the fourth assistant postmaster-general.

3. (*a*) By the governor with the consent of the senate. Collects statistics in regard to agriculture; seeks to prevent the spread of contagious diseases among domestic animals and to destroy insect pests.
(*b*) Elected by the qualified voters of the state. He audits state bills.

4. Sheriff. He may call out the *Posse Comitatus*, that is, all able-bodied men in the county to help him or he may call on the governor of the state to aid him with the state militia.

5. A mortgage is a written grant or conveyance of property from one person to another as security for the payment of a debt.

one special paper in technical and applied grammar ought to be set for intermediate and advanced German, somewhat analogous to the one in Latin and Greek. This would, in my judgment, of necessity, prevent this part of language study, which is surely necessary for successful work, from being entirely neglected for the other part demanding our chief attention, and would insure better scholarship all along the line. CARL F. KAYSER.

New York City Normal College.

Philadelphia Raises Salaries

Philadelphia has raised the salaries of its elementary teachers fifty dollars all along the line, and thus does something to wipe out the stigma of paying its teachers less than any other large city. Teachers hereafter will receive $520 their first year, instead of $470. The old provision for an annual increase of thirty dollars for the first ten years of service, will remain in force.

The new five mills school tax provides about $200,000 more for the schools than they have had heretofore, the total sum for school purposes for the coming year being in the neighborhood of six and one-quarter millions. The increased funds gave opportunity for the raising of salaries. The increase will affect more than three thousand six hundred women, and about one hundred and sixty men.

The appropriation for salaries for the past year was a trifle over $3,700,000, out of a total for school expense of somewhat more than six million dollars.

The Board also appropriated $50,000 to create a teachers' retirement fund, on condition that the teachers contribute an equal sum. There is no doubt of the willingness of the teachers to contribute their share. Probably they will raise it on the basis of a levy of one per cent. of the annual salary of those who have taught less than ten years, and two per cent. on the salary of those who have taught longer than that. The fund of $100,000 will be sufficient to provide for superannuated teachers.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

CIVICS.

1. **Mention two county officers and two town officers who are required to give bonds. Why are the bonds required?**

2. **State how the following are chosen: (*a*) the postmaster-general of the United States, (*b*) the postmasters of first class offices, (*c*) the postmasters of third class offices.**

3. **Tell how the State Commissioner of Agriculture and the State Comptroller are chosen and mention an important duty of each.**

4. **Which county official is required to suppress disorder and maintain peace? In case of an emergency, from what two sources may assistance be obtained?**

5. **What is a mortgage? Mention two kinds of mortgages. Where is each recorded?**

6. **Mention three personal rights guaranteed by the State Constitution to all individuals of the State.**

7. **Under what circumstances and in what manner may private property be taken for public use?**

8. **Which is the highest court in the United States? How are the judges of this court chosen? What is their term of office?**

9. **What officer presides over the United States Senate? Give the compensation of this officer and the constitutional provision regarding his right to vote on legislative questions.**

10. **Give the procedure of electing a president when the presidential electors fail to make a choice.**

ANSWERS.

1. **County treasurer, sheriff. Supervisors, collector.**
To secure the county or town against loss.

2. **(*a, b*) By the President with the consent of the Senate.**
(*c*) By the fourth assistant postmaster-general.

3. **(*a*) By the governor with the consent of the senate. Collects statistics in regard to agriculture; seeks to prevent the spread of contagious diseases among domestic animals and to destroy insect pests.**
(*b*) Elected by the qualified voters of the state. He audits state bills.

4. **Sheriff. He may call out the *Posse Comitatus*, that is, all able-bodied men in the county to help him or he may call on the governor of the state to aid him with the state militia.**

5. **A mortgage is a written grant or conveyance of property from one person to another as security for the payment of a debt.**

Mortgages on real estate, chattel mortgages on personal property. The former is recorded by the county clerk; the latter is filed with the town clerk.

6. Trial by jury; freedom of worship; right of petition, etc.

7. Private property can be taken for public purposes if it is needed for the good of the community, the state, or the nation; but it must be clear that the general good will be promoted thereby. Whenever property is thus appropriated the owner is entitled to a just and reasonable compensation.

8. Supreme Court; chosen by the President with the consent of the Senate; during life, or good behavior.

9. Vice-President. Salary, $8,000. He shall have no vote except in case of a tie.

10. The House of Representatives shall choose by ballot the president from the persons having the highest numbers, not exceeding three, on the list of those voted for as President. But in choosing the President, the votes shall be taken by states, the representation of each state having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the states and a majority of all the states shall be necessary to a choice.

METHODS AND SCHOOL MANAGEMENT.

1. From what direction should the pupil receive light for his work? What should be the ratio between the window area and the floor of a school-room?

2. Mention two characteristics of pupils of the grammar grades that make the teaching of history easy.

3. Mention two faculties that should be chiefly appealed to in teaching children in the primary grades.

4. What parts of arithmetic should receive principal attention during the first three years of school life?

5. Distinguish between fault-finding and criticism on the part of the teacher.

6. Distinguish between questioning for development and questioning for test purposes.

7. Mention four hygienic conditions that the welfare of the children requires the teacher to keep constantly in mind.

8. Describe a plan by which the teacher may enable the pupils to acquire considerable knowledge of civil government, without having a special class in that subject.

9. Mention three common causes of disorder in a school, one of which is due solely to the teacher, one to both teacher and pupils, and one chiefly to the community.

10. Give three efficient means of promoting regularity of attendance

ANSWERS.

1. From the left and rear. From one-eighth to one-fourth, varying according to the width of the room, nearness to other buildings, height of ceilings, and other circumstances.

2. Great desire for knowledge and a tendency toward hero worship.

3. Perception and imagination.

4. The fundamental operations. There should be training in accuracy and rapidity.

5. Fault-finding shows the wrong. Criticism not only shows the wrong but also prescribes a salutary remedy.

6. Questioning for development is done in psychologic order. It is suggestive and leads from that which is clearly known to that which is less clearly known. Questioning for test purposes is without specific order and for the purpose of ascertaining the amount of a given subject that has entered into the child's mental content.

7. Light, heat, ventilation. Physical exercises of the child. Its position in sitting or standing.

8. It may be correlated with history or it may be taught by leading the children to find out thru questioning at home the government of the school district; the teacher can go from this to the township, etc.

An excellent method is to organize the schools into a school district, township, or city and have them elect officers who will of necessity learn their respective duties.

9. Inefficient teachers; poorly prepared lessons; poor school facilities, *i. e.*, lack of apparatus, crowded school-room, etc.

10. Make the opening exercises of the school attractive. Secure the cooperation of the parents. Notify the attendance officer.

AMERICAN HISTORY.

1. Give a brief account of Columbus, mentioning (*a*) his native city, (*b*) the time in which he lived, (*c*) the great object of his life, and the result of the pursuit of that object.

2. Give the location and the date of (*a*) the first permanent English colony in North America, (*b*) the first permanent Spanish colony in North America, (*c*) the first permanent French colony on the St. Lawrence River.

3. From what place did the first English settlers in the Connecticut valley come? Who disputed their right to settle in this valley?

4. Where was Fort Duquesne located? Why was it an important military position? Give the story of its capture by the English.

5. Write on one of the following: (*a*) the battle of Oriskany, (*b*) the campaign of George Rogers Clark.

6. Write on the Constitutional Convention, mentioning (*a*) date and place of meeting, (*b*) the chairman of the convention, (*c*) two prominent members from Virginia, (*d*) one prominent member from New York, (*e*) one prominent member from Pennsylvania, (*f*) one important compromise that was made.

7. What measure or measures were recommended by Hamilton as secretary of the treasury for (*a*) providing a currency, (*b*) promoting manufactures, (*c*) securing a revenue?

8. About what time did the Whig party come into prominence? Mention one of the leading principles of the Whig party and name three of its leading statesmen.

9. Locate each of the following places and mention a historical fact connected with each: Hampton Roads, Harper's Ferry, Appomattox Court House, Gettysburg, Shenandoah Valley.

10. Mention three causes of the War of 1812.

ANSWERS.

1. (*a*) Columbus was a native of Genoa. (*b*) He lived during the latter part of the fifteenth and the first part of the sixteenth century. (*c*) The great object of his life was to find an all-water route to the East Indies. He sought this by sailing westward and the result was the discovery of the New World.

2. (*a*) Jamestown, Va., 1607; (*b*) St. Augustine, Fla., 1565; (*c*) Quebec, 1608.

3. Massachusetts colony. The Dutch.

4. Western part of Pennsylvania at the junction of the Allegheny and Monongahela Rivers. It controlled the navigation westward on the Ohio River. It was captured by an expedition led against it by Gen. Forbes. The French evacuated the fort on the approach of Forbes and his army.

5. (*a*) St. Leger was leading an army thru the Mohawk Valley from Oswego with the intention of joining Burgoyne at Albany. Near Fort Stanwix his army encountered the American militia under Gen. Herkimer. Here was fought the battle of Oriskany, one of the most stubbornly contested and most important battles of the Revolution.

(*b*) Col. Geo. Rogers Clark raised an army of Virginians and frontiersmen and marched into the Northwest country north of the

Ohio River and forced the Indians, French, and British in that region to submit to his authority. It was this expedition that saved that region to us in the treaty of 1783.

6. (*a*) The Constitutional Convention met in Philadelphia, May 1787. (*b*) George Washington. (*c*) James Madison and Patrick Henry. (*d*) Alexander Hamilton. (*e*) Benjamin Franklin. (*f*) Each state was allowed to send two members to the United States Senate.

7. (*a*) The establishment of a mint, a United States bank, and the coinage of gold and silver at the ratio of 15 to 1. (*b*) A protective tariff on certain manufactures. (*c*) Import duties and an excise tax on distilled spirits.

8. Soon after the war of 1812; protective tariff and internal improvements; Clay, Webster, John Quincy Adams.

9. Hampton Roads is located at the entrance to Chesapeake Bay. It is noted as the scene of the battle between the Monitor and the Merrimac in the Civil War.

Harper's Ferry, in northern Virginia, on the Potomac, is the place where John Brown made his attempt to liberate the slaves.

Appomattox Court House in the western part of Virgina is the place where Gen. Lee surrendered his army to Gen. Grant.

Gettysburg, in southeastern Pennsylvania was the location of one of the most important battles of the Civil War.

Shenandoah Valley in western Virginia is noted for the cavalry raids of Gen. Early and of Gen. Sheridan.

10. The impressment of American seamen; English tampering with the Indians and urging them to attack our frontiers; interference with our trade by the Orders in Council.

ALGEBRA.

1 If $a=2$, $b=3$, $c=6$, $d=5$, find the numeric value of

$$a+2c-\{b+d-[a-c-(b-2d)]\}$$

2 Find the value of $\dfrac{6a^2-5a-4}{2a^2+7a-4}\times\dfrac{6a^2+a-2}{4a^2-4a-3}$

3 Solve $\begin{cases} \dfrac{3}{x}-\dfrac{1}{y}=3\frac{1}{2} \\ \dfrac{5}{y}+\dfrac{3}{z}=-7 \\ \dfrac{2}{x}-\dfrac{1}{z}=0 \end{cases}$

4 Find the square root of $\frac{9a^2}{4} - 5ab + \frac{25b^2}{9}$

5 Express with positive exponents $5a^{-1}b^3$; $\frac{3a^{-2}b}{cd^{-3}}$

Multiply $a^{\frac{2}{3}} - a^{\frac{1}{3}} + 1$ by $a^{-\frac{1}{3}}$

6 Reduce to simplest form $5x\sqrt[3]{\frac{8}{25}}$; $\sqrt{\frac{12(a-b)}{5(a+b)}}$

7 Simplify $3 - \frac{a-1}{2a - \frac{5a}{3}}$

8 Solve $\frac{x-1}{2} + \frac{2}{x-1} = 2\frac{1}{2}$

9 Solve $\begin{cases} 2x - 5y = 0 \\ x^2 - 3y^2 = 13 \end{cases}$

10 The difference between two numbers is 55 and the lesser is co
tained in the greater 3 times with a remainder of 15; find the numbe

ANSWERS.

1 9

2 $\frac{9a^2-6a-8}{2a^2+5a-12}$

3 $x=2$
$y=-\frac{1}{2}$
$z=1$

4 $\frac{3a}{2} - \frac{5b}{3}$

5 $\frac{5b^3}{a}$; $\frac{3bd^3}{a^2c}$; $a^{\frac{1}{2}} - 1 + a^{-\frac{1}{3}}$

6 $2x\sqrt[3]{5}$; $\frac{2}{5(a+b)}\sqrt{15(a^2-b^2)}$

7 $\frac{3}{a}$

8 $x=5$ or 2

9 $x=\pm 5$
$y=\pm 2$

10 $x=75$
$y=20$

One hundred and fifty of the very best

HINTS AND HELPS

FROM

Many School Rooms

Arranged by C. S. GRIFFIN, Editor of OUR TIMES

ONLY such devices have been selected as have been tried and found successful in the actual work of the schoolroom. These include the subject of school Management, Reading, Spelling, Writing, Arithmetic, Geography, Language, Music, Drawing, Busy Work, and Current Events, besides a large number of general suggestions covering all manner of subjects connected with school life.

It is a veritable teacher's cyclopedia of tested ideas and suggestions for lightening the burdens of schoolroom work, keeping up pupils' interest, and making school what it ought to be, the happiest, busiest, most enjoyable and inspiring place the pupils know of.

Bound in Cloth
200 Pages

$1.00

At all Booksellers
or by Mail

SPECIAL OFFER: Hints and Helps and Educational Foundations one year — — $1.75

A. S. Barnes & Company
Elizabeth, N. J. :- NEW YORK

JUST PUBLISHED

LITTLE TALKS
ON
School Management

:: By RANDALL N. SAUNDERS ::
School Commissioner, First District, Claverack, New York

A PRACTICAL WORK, full of suggestion, information, and inspiration for teachers in primary schools. It contains full description of novel and practical methods that have been employed to excellent advantage by the author. In style, the work is clear, concise,—at times epigrammatic,—but not wholly devoid of ornament, and, while it is far too serious in intent for humor, it is not without an occasional flash that will be met by the teacher of experience with a smile of recognition.

16mo. Cloth **50 Cents** Postpaid

SPECIAL OFFER: Little Talks on School Management and Educational Foundations one year $1.50

A. S. Barnes & Company
Elizabeth, N. J. = NEW YORK

Educational Foundations

Stanford Univers
NOV
23
190

DECEMBER
1906

DEPARTMENT OF
EDUCATION.
RECEIVED
NOV 2 6 1906
LELAND STANFO
JUNIOR UNIVERSIT

VOL. XVIII
NO. 4

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY
ELIZABETH, N. J.   Entered as Second Class Matter at
the Post Office at Elizabeth, N. J.   NEW YORK CITY

Copyright, 1906, by A. S. Barnes & Company, New York

Contents for December, 1906

The Heart at the Center. The Editor - - - 241

Growth by Interest. The Editor - - - - 242

COURSE OF STUDY

Arithmetic: Methods of Instruction. II. C. B. Gilbert - - - - - - - - 243

Educational Research: A Test in Arithmetic. J. M. Rice - - - - - - - - 251

Test Questions in Arithmetic - - - - 268

Autobiography of a Teacher. IV. C. Hanford Henderson - - - - - - - - 271

LITERATURE AND HISTORY

The Revival of Ancient British Legend. Hubert M. Skinner - - - - - - - 286

The Hebrew Woman in Bible Days. J. Chotzner 293

Teaching Power in Elementary Schools - - 299

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to June inclusive, at $1.25 a year, and is sent to its subscribers regularly until ordered to be discontinued and arrears paid for in full. We also publish The School Journal, weekly, $2.50 a year; Teachers Magazine, monthly, $1.00 a year; and Our Times, monthly, $1.25 a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly 400 Standard Teachers' Books and Aids, also Recitation and Dialog books, Blackboard Stencils, Teachers' Aids, etc.

All requests for catalogs, orders for books, etc., should be sent to

A. S. BARNES & COMPANY
EDUCATIONAL DEPARTMENT
11-15 East 24th Street NEW YORK

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII DECEMBER, 1906 No. 4

The Heart at the Center

Education is man's interpretation of God's will towards mankind.

According as man sees Law as the highest embodiment of beauty, or as the edict of a severe task-master, his dealings with mankind will be gentle or affrontive.

God made mothers because He wanted the heart to be the ruling principle in education. A school system that has no heart at its center is a hollow fraud.

In the clatter of the machinery that has been found needful in the management of large schools and school systems the claims of the heart are apt to be forgotten. They must not be. The larger the system, the more need there is of insistence upon the full consideration of these claims.

Those who have "strange ideas of God" will not agree to this. Their reasoning appears to be something like this: God loved Adam and Eve and Abel—"God bless me and my wife and my son John, us three and no more." When the number of people increased in the world, love had to give way to system. And so system there be thenceforth and thereafter.

The hopeful ones have a different view. They believe that with every new human being there comes into the world a greater increase of love. There must come a time when wars and rumors of wars will cease because of this increase. And I believe as the hopeful ones do. Which means that the larger the school system the more there should be of sweet reasonableness in it, and that the greater a superintendent is, the more he will have of the spirit that quickeneth.

To be a good executive does not mean that one must be an executioner. Neither do reports and espionage and the filling out of many blanks make up for an iota of the lack of the greater needs.

Cultivate hopefulness! In yourself first. If you lack it your eyes will have to be trained, by careful persistence, to see beauty in the world. He who can discern beauty will be bent upon the cultivation of everything that promises new beauties.

Do you know how to tell a good school? a good school system? By the spirit of it—the amount of heart there is at the center.

Growth by Interest

The rule must be to give to the young the things that are truly good for them to have, provided these are not beyond their comprehension. There is, of course, the other consideration that the lesser good must yield precedence to the greater. With these fundamentals in mind the teacher cannot go far wrong.

Cultivation of the interests of children must not degenerate into a pandering to their appetites. The only interests that education has a right to consider are those that represent paths leading into the realm of truth.

The mere feeding of the appetites is a base occupation. Appetites are like horse-leeches which desire only to fill themselves and then drop off from the object that gave them suck. Interest is the seed of a tree which in its growth forces its way thru the soil to the sunlight and continues to grow higher and higher, spreading its branches and producing fruit for the nourishment and the comfort and the joy of the children of men.

Growth means struggle, and interest is the heart of growth. Struggle, then, there must be in the development of the interests. Great is the reward! The more fully the interests are developed the more one can share with his fellowmen the enjoyment of the treasures of humanity, the more effectively one may participate in the world's work, the more sources of happiness there are open to one, the nearer one draws to a right comprehension of truth.

Course of Study

Arithmetic

II. Methods of Instruction

IN the preceding article I discussed the results to be sought in the teaching of arithmetic and the values of the various topics usually included in text-books on this subject as related to the ends to be accomplished. The conclusion was drawn that thru the study two general results should be secured: (1) Facility and accuracy in the use of numbers, as applied to the simple operations which constitute the great part of ordinary business calculations; (2) such culture as can best be obtained in connection with the study of numbers. This culture falls into two classes: (*a*) The power to reason justly, a result of the logic of mathematical reasoning, inexorable altho limited in application and (*b*) such knowledge of the physical world and of human relations as is expressed largely in numerical terms.

In this article I shall discuss some methods by which the three ends sought in the teaching of arithmetic may be secured. The class-room teacher usually has little to say as to what topics in arithmetic he shall teach. They are fixed in the course of study. He may, however, at least to a degree, so present even unnecessary topics as to determine the character of the results. Naturally, for psychological reasons, the methods of instruction must vary with the age and attainments of the pupils.

It will be manifestly impossible in a single article to treat other than typical subjects for the different grades.

First, how to secure facility and accuracy in calculation?

The teacher's one invariable means to this end has always been drill, by which is meant iteration, repeating number combinations over and over again until the brain paths become fixed and the action automatic. Unquestionably drill of this sort will always be an important means in this phase of instruction. If the only elements of this so-called practical end of arithmetic were rapid and exact addition, subtraction, multiplication, and division of integers, such drill might possibly suffice, altho even then the psychological difficulty of loss of interest and consequent limitation of progress would of necessity manifest itself. Automatic processes are naturally self-limiting.

But even the most fact-loving of Gradgrinds is not satisfied with the mere ability to combine and separate integers under the four "fundamental principles." It must be possible to use them in business problems, also with facility and accuracy. It must, too, be possible to deal accurately and swiftly with fractions, common and decimal. These requirements demand more than mere calculating machines. They demand the power to think, which drill alone cannot furnish. Here the first aim touches the second and it becomes apparent that no mere mechanical drill is sufficient for even its own ends. So we must include some of the suggestions for the second end in our treatment of the first.

Facility and accuracy are to be secured thru—first, such a presentation of the subject as to arouse interest, and to secure a comprehension of the relations involved; second, drill upon the operations involved and others similar. The method of presentation to secure interest and grasp will vary with the mental status of the pupils. In the primary grades it will usually be thru problems concretely presented.

Take, for example, the always difficult problem of "carrying" in addition and "borrowing" in subtraction. It can be
taught by rule, by illustration or by use of the objects,
23 but with very different results. Add 23 and 19. By
19 rule we say 9+3=12, 1 ten and 2 units. Set down the 2
— under units column, add the 1 to the tens in tens column
42 =4. Some few children may comprehend this if tens
and units have previously been taught concretely, not otherwise. But to most it is simply an order to be obeyed unquestioningly. This is the method of the older books and of most of those in use to-day, and I venture to say that there are many teachers in the schools who did not until in their

maturity they began to teach, really comprehend the simple reason for "carrying."

Another method is by illustration, rows of pictured objects in tens and units:

				XXXXXXXXXX
XXXXXXXXXX		XXXXXXXXXX		XXXXXXXXXX
XXXXXXXXXX	+	XXXXXXXXX	=	XXXXXXXXXX
XXX				XXXXXXXXXX
				XX

2 tens, 3 units
1 ten, 9 units
———————
3 tens, 12 units

4 tens, 2 units

This unquestionably aids the comprehension, and more children will grasp the principle from this method than from the mere rule. But it is not the simplest or the most effective way. A very simple and easily procured material for concrete illustration is a box of sticks, such as are used in the kindergarten and in many primary schools. Wood toothpicks will do as well. Let the children tie up a hundred or more of the sticks in bundles of ten each (don't do it for them), leaving a considerable number single.

Then let them actually lay out the sticks, 2 bundles of 10 and 3 single sticks, and lay beside them one bundle of ten and 9 singles, making in all 3 bundles of 10 and 12 single sticks. Have children tie up 10 of the singles into a new bundle and place it with the others, giving 4 tens and leaving 2 ones. The operations with figures should be carried on simultaneously on the blackboard and by the children on paper. Simple as this may seem, it is psychologically and physiologically sound. The employment of the motor activities and of the muscular sense strengthens and deepens the impression and aids in producing knowledge of the fact as distinguished from words.

Add 23
19
—
42

For subtraction reverse the process, taking care to have the manipulations actually performed. The children have 23 sticks, 2 bundles of ten and 3 single ones. Ask them to give you 19. They will set aside one ten, but to get the nine obviously the other bundle must be opened. That makes 10 single ones or units to add to the 3, 13 units in all. Now the nine can be taken and put with the bundle of ten, leaving four units.

Subtract 23
19
—
4

This, too, must be accompanied by a demonstration of the operation with symbols.

Possibly even a better material for the study of the periodic values of figures is real or imitation coins, cents and dimes and dollars, used in the making of change to illustrate reduction of lower to higher, and the reverse.

The foundation once laid,thru "carrying" and "borrowing" in addition and subtraction, with sufficient practice to confirm the knowledge beyond the possibility of loss, serves for the entire structure of notation, including decimals, with all the manipulations necessary under the four "fundamental principles."

This preparatory work, whose purpose is to secure actual comprehension of the relations indicated by the positions of figures in numbers, must be followed, not preceded, by drill.

The order of presentation is this:

First, a problem whose solution is carefully developed by every means necessary to its full comprehension. Then more problems of a similar sort, to be worked by the pupils, enough to clinch the instruction given and make it a factor in all future similar operations; then drill upon abstract numbers to secure the desired automatic action. Drill should be bare drill, unembarrassed by terms or conditions or names not absolutely necessary to the statement of the problem in its simplest form.

That is, for drill in addition, do not give problems upon so-called concrete numbers, but rather upon abstract, for instance, not such questions as:

2 apples + 4 apples = ? apples.
3 marbles — 2 marbles = ? marbles.
6 × 3 boys = ? boys.
10 girls ÷ 2 = ? girls.

but rather

2 + 4 = ?
3 — 2 = ?
6 × 3 = ?
10 ÷ 2 = ?
2 + 2 + 3 + 4 = ?

The addition of a name to a number does not really make it concrete, but it does embarrass the solution by introducing an element foreign and unnecessary.

There should be at the proper time much drill employing all the combinations used. The proper time is *after* they have been taught.

The application of these principles to fractions, to the study of lines, surfaces, and solids, to denominate numbers and to monetary transactions is evident.

First develop the relations involved, and then drill until the memory will act mechanically.

Care must be exercised not to go beyond the point of interest even in the later drill. The moment that interest ceases, the drill becomes dead and is likely to do more harm than good. Minds interested and alert are the requisite of valuable drill.

Let me give an illustration of drill in a higher grade, where the actual presence of concrete objects is either impossible or unnecessary.

One of the perennial difficulties of children in intermediate grades is the Least Common Multiple, especially in the form of the Least Common Denominator of fractions. The usual formal method of finding it is awkward, and is never used outside of school. The only practical use for the Least Common Denominator is with small numbers, whose multiples may be found at sight. It is very important that children studying fractions should be able to factor at sight all composite numbers to 100, and to find from these factors, also at sight, the common multiples of the numbers. This is a matter of drill, but drill of an interesting sort.

The real beginning should be in the primary grades in counting by 2 's, 3 's, 4 's, and all the other digits. This is a form of drill in which children take great delight. If started early it paves the way for the multiplication table and factoring. It should be supplemented by continual practice in parting and wholing of all composite numbers studied, as rapidly as their composition is developed, at first concretely, thus getting away from any possible notion of a fixed unit.

After this preliminary drill thruout the primary grades, factoring, as such, becomes play; since the children have the necessary apperception centers. The various pairs of factors are recognized at once, and the factors of such of these as are composite are also instantly seen, so that the pupils are ready to make the new combinations.

$$\text{Add } \frac{3}{14}, \frac{2}{21}, \frac{6}{7}, \frac{2}{3}, \frac{1}{2}, \frac{5}{6}, \frac{5}{42}$$

This is an unnaturally and improperly long example, but for that reason it illustrates the principle.

If the children have not been properly drilled first in parting and wholing, and then in factoring, they must resort to the long method of finding the Least Common Denominator. If they have been so drilled, many of them will see it at a glance, without even going thru the process of factoring; others will analyze each composite denominator into factors and quickly detect the combination which will contain them all.

2, 7 | 3, 7 | 7, | 3 | 2 | 2, 3 | 2, 3, 7 |

The only new thing they need to learn is that each factor must be used as many times as it occurs in any one number, and that they will discern for themselves after a little discussion

So they multiply 2 × 3 × 7.

But the simplicity of this operation depends upon the *preceding drill.*

Compare the old method:

7) 14, 21, 7, 2, 3, 6, 42
2) 2 3 1 2 3 6 6
3) 1 3 1 1 3 3 3
1 1 1 1 1 1 1

And at the end they do not know why they multiply 2 × 3 × 7.

To repeat: Each new subject should be approached thru problems that appeal to the children as genuine. The solution of these problems should be worked out inductively, until the principle involved is made perfectly clear. Other like problems should follow, sufficient in number to impress the principles taught beyond the possibility of loss.

Then, and not till then, should come the drill upon abstract numbers, and it should be so abundant, so varied, and so complete, that all the operations specifically taught under the topic considered, become as nearly automatic as their character will allow.

A caution is needed as to the limitations of the use of the concrete. I have known of teachers developing subjects by means of sticks and squares and cubes and other school-room paraphernalia so continuously as not only to retard progress, but even to cause arrested mental development. The children have become so used to handling things to get knowledge that their power to reason abstractly has been actually impaired.

The object should be used to give a clear image, and as soon as this has been accomplished, should be discarded. Its only use is to lead to clear thinking. When the children are able to image the combinations and to think the processes without the material aid its use should be discontinued at once. Some children can dispense with these aids sooner than others. The teacher must judge.

For instance, in teaching the relations of terms in numeration, units to tens, tens to hundreds, etc., by the use of objects as outlined above for "carrying" and "borrowing," it will seldom be necessary to carry the method beyond tens. If the tenfold increase from units to tens is made perfectly clear, the corresponding increase will be comprehended by most children without the concrete illustration. A few may need to have hundreds developed. The ability to reason should be the reliance whenever possible. The material aid should be used only when needed.

The above are merely typical instances, but the principles are of general application. If drill in all the simpler operations upon numbers were preceded by a thoro comprehension of the principles involved, and then were so abundant and of such character as to make those operations automatic and yet intelligent, we should have fewer complaints from business men that children nowadays cannot add.

The important numbers in most operations are the small numbers, and the important combinations are the simpler ones. These are easily learned when once they are comprehended.

Now as to training children to think thru instruction in arithmetic.

Western Reserve University. C. B. GILBERT.

(To be continued.)

Next month Dr. Gilbert will discuss the problems involved in the teaching of reading.

Sweetness and light are best for the pupils. They are best for the teacher, too. The habitual thinking and saying things that spread joy abroad is a special acquisition that neither money nor labor can supply. It was this habit that developed a Francis of Assisi, a Florence Nightingale, a Maud Ballington Booth. The world is a better place to be in because of the loving thoughts lived by these great souls. They did more for mankind than Cæsar, Napoleon, or Crœsus.

Educational Research

A Test in Arithmetic

TWO fundamentally practical questions must be applied to every study in an elementary school program; they are:

(1) What results shall be accomplished? and (2) How much time shall be devoted to the branch?

Intimately associated with these questions is a third, namely, Why do some schools succeed in securing satisfactory results with a reasonable appropriation of time, while others cannot get reasonable results in spite of an inordinate provision of time? This question introduces a problem which is much more involved than the two others. Altho no previous attempts have been made to discover which schools have really met with success in the teaching of a subject, under a given time allotment, and which have not, the facts are not difficult to secure.

The facts here presented were derived from a test in arithmetic which comprised eighteen school buildings, representing seven cities. In all, about 6,000 children were examined. While the number of pupils tested was not nearly so large as in the case of my examinations in spelling, the investigation, nevertheless, sufficed to show the general conditions equally well from several points of view.

The test itself consisted of eight examples. In the first two schools ten were given, but some curtailment seemed advisable. The examinations were given to the pupils of the fourth, fifth, sixth, seventh, and eighth school years, representing, generally speaking, the grammar grades. They were not given below the fourth year, because the principal point, after all, is to see what the children are able to do on leaving school, and very few leave before the end of the fourth year.

In preparing my questions I endeavored to arrange them in a way that would suit the individual grades of all schools, regardless of the methods or systems employed. From this standpoint I was successful, excepting that in a very few instances

TABLE I.

	School.	4		5		6		7		8		SCHOOL AVERAGE.			Minutes daily.	When taken.
		Result.	Principle.	Result.	Principle.	Result.	Principle.	Result.	Principle.	Result.	Principle.	Result.	Principle.	Per cent of mechanical errors.		
City III	1	68.4	76.7	79.5	82 5	79 8	80.8	81.1	82.3	91.7	93.9	80.0	83.1	3.7	53	A.M.
City I	1	72.7	81.4	84 7	88.8	80 4	81.5	64.2	67.2	80.9	82.8	76.6	80.8	4.6	60	A.M.
City I	2	....	....	80 3	87.1	80 9	83.4	43.5	50.9	72.7	79.1	69.8	75.1	7.7	25	A.M.
City I	3	54.5	66.0	74.7	78.8	72.2	74.0	63.5	66.2	74.5	76.6	67.8	72.2	6.1	45	A.M.
City I	4	60.0	73.8	70.8	79.8	69.6	72.2	54.6	57.8	66.5	69.1	64.3	70.3	8.5	45	P.M.
City II	1	81.8	87.7	78.2	85.6	71.2	75.8	83.6	85.7	86.8	40.0	60.2	64.8	7.1	60	P.M.
City III	2	70.1	79.9	53.6	60.0	43.7	45.0	53.9	56.7	51.1	53.1	54.5	58.9	7.4	60	P.M.
City IV	1	70.5	76.4	78.2	77.7	58.9	60.4	81.2	84.1	41.6	43.5	55.1	58.4	5.6	60	A.M.
City IV	2	62.9	72.8	70.5	76.8	59.8	68.1	....	....	22.5	22.5	53.9	58.8	8.8	..	P.M.
City IV	3	59.8	72.7	65.3	78.5	54.9	58.1	85.2	88.6	43.5	45.0	51.5	57.6	10.5	60	A.M.
City IV	4	53.5	62.2	58.5	65.7	42.8	45,1	16.1	19.2	48.7	48.7	42.8	48.2	11.2	..	P.M.
City V	1	88.5	46.8	67.0	71.0	44 1	48.7	29.2	82.5	51.1	58.8	45.9	51.3	10.5	40	P.M.
City VI	1	28.1	81.7	88.1	44.2	68 8	71.8	33.5	86.6	26.9	80.7	39.0	42.9	9.0	33	A.M.
City VI	2	41.6	51.9	45.8	52.1	46.1	49 5	19.5	24.2	80.2	40.6	36.5	43.6	16.2	30	P.M.
City VI	3	36.8	54.2	55.0	62.8	34.5	36 4	30.5	35.1	23.3	24.1	36.0	42.5	15.2	48	P.M.
City VII	1	59.3	69.8	58.7	63.1	35.2	37.7	29.1	32.5	25.1	27.2	40.5	45.9	11.7	42	A.M.
City VII	2	47.4	55.2	65.4	71.4	35.2	38.7	15.0	16.4	19.6	21.2	36.5	40 6	10.1	75	P.M.
City VII	3	41.1	58.0	37.5	44.5	27.6	33.7	8.9	10.1	11.3	11.8	25.8	31.5	19.6	45+	P.M.
General average	...	59.5	69.9	69.4	75.5	60.7	63.2	39.4	42.5	49.4	51.9	55.7	60 6	8.1		
Per cent of mechanical errors	....	....	14.8	....	8.1	....	3.9	....	7.3	....	4.8					
Number of pupils examined	....	....	1,422	....	1,593	....	1,285	....	974	....	689	Total, 5,963.				

two of the examples were beyond the scope of the pupils in the first half of the fourth year, because they had not yet learnd to multiply or divide with figures above twelve, and in the first half of the seventh year, where the classes had not yet had much practice in percentage. These points were carefully noted; but when the papers were marked it was found that the effect upon the entire school average would not in any case exceed two per cent. I wish to add, furthermore, that for the purpose of studying the growth of mental power from year to year, some of the problems were carried thru several grades. Thus, of the eight questions for the fourth grade, five were repeated in the fifth, and three in the sixth, etc. Moreover, this repetition will enable us to see not only, for instance, how the results in the fifth and sixth grades, in regard to certain problems, compare with those of the fourth in the same school, but also how the results in the fourth grade of some schools compare in these examples with those of the fifth and sixth grades of others, etc. The problems for all the grades may be seen on pages 296 and 297.

In my investigation of the spelling problem, the striking feature, in regard to the results, was the fact that the differences were small, and particularly so in the upper grades. In arithmetic, on the other hand, the differences were large all along the line, and much greater in the seventh and eighth year classes than in the earlier ones. In the seventh year, the class averages ranged from 8.9 per cent. to 81.1, and in the eighth year, from 11.3 to 91.7. The averages for schools taken as a whole varied between 25 and 80 per cent.; and the extremes did not represent isolated cases, but were merely the ends of a graduated scale. In some schools low marks in two or three grades were offset by high marks in the others, producing a fair percentage. In others, fair results, grade for grade, produced a fair school average. In another class of cases the marks were good thruout, and in still another low thruout.

Table I gives two averages for each grade as well as for each school as a whole. Thus, the school at the top shows averages of 80.3 and 83.5, and the one at the bottom, 25.2 and 31.8. The first represents the percentage of answers which were absolutely correct; the second shows what per cent. of the problems were correct in principle, *i. e.*, the average that would have been received if no mechanical errors had been made. The difference represents the percentage of mechanical errors, which, I believe, in most instances, makes a surprisingly small appearance.* For the sake of uniformity I shall use the figures of the first column as the basis of comparison, altho, in view of the very small differences, the same remarks would have applied to the other column as well.

If, for the purpose of analysis, the schools be divided into three classes—good, fair, and poor—the question of distribution becomes interesting, because, in nearly all cases, the different schools of an individual city will be found to belong to one and the same class. Thus, every one of the four schools of City I made a very good average; the three schools of City VI and the three of City VII show, without exception, very poor results; and of the four buildings in City IV, three did fairly and one did poorly. The only marked exception is to be found in City III, one of whose schools heads the table, while the other did only fairly well.

As for City I, by comparing the percentages for each grade with the general average for that grade, *i. e.*, the averages for all schools examined taken collectively, it will be seen that in one only of the nineteen classes represented did the other grade average fall below the general average, the results in all other instances being above. On the other hand, of the fifteen classes of City VI, one only crossed the general average for the grade, while the results in the others were far below; and of the fifteen classes of City VII, one only touched the general average, several of the others being very far below. City IV saved itself from a low classification thru favorable results, for the most part, in the fourth and fifth years.

---

*The method of computing the mechanical errors requires an explanation. In examining the papers, only those examples that had been correctly worked in principle were considered: the others were marked wrong, and no further account was taken of them. Consequently, the percentage of mechanical errors is represented by the errors of that nature in the problems that had received credit for the principle. Thus, the figures for the school at the top show, in round numbers, that out of every eighty-three examples correct in principle, three contained mechanical errors. The latter are therefore represented by the fraction $\frac{3}{83}$, which is equivalent to 3.6 per cent. In the case of the school at the bottom, the fraction is $\frac{6}{31}$ equivalent to 19.3 per cent. In the table the percentages are slightly different because the decimals also were considered.

The single school in City II secured high marks in the fourth, fifth, and sixth years, but did poorly in the seventh and eighth; while the single school in City V just met the general average in the fifth and eighth years, but fell far below it in the others.

After this review of figures, it will be appropriate to ask why the results in the schools of City I were so much more favorable than those in the schools of Cities VI and VII. The layman would be disposed to reply at once that arithmetic had been better taught in the schools of the former city than in those of the latter. On the other hand, many thoughtful educators would not accept this offhand statement, but would claim that so many factors came into play in the education of the child that it is impossible to tell to what extent results are due to the teaching, and in how far they are modified by other causes.

It is evident, therefore, that in seeking an explanation for the differences in the results, two factors must be taken into consideration: first, the influence of the teaching; and, secondly, the resistance against that influence due to circumstances over which the teacher has no direct control. It may be argued that if the resistance be great, superior teaching may be followed by poor results, and, on the other hand, that if the resistance be small, inferior teaching may be rewarded by excellent results. But it must also be admitted that if the resistance be equal, good results in one case and poor results in another must be credited to a difference in the quality of the teaching.

That the amount of resistance offered by non-pedagogical influence is to-day unknown does not by any means indicate that it must forever remain unknown. On the contrary, the problem of modifying conditions is not at all difficult to solve if we will but look it squarely in the face, divide it into its component parts, and study each factor independently. Analysis of the problem will show that the essential elements of which it is composed do not exceed three in number: (1) The home environment of the pupils; (2) the size of the classes; and (3) the average age of the children.

Now there is no mystery in regard to any of these points. All the facts may be readily ascertained and their value determined without great difficulty. As to the home environment of the pupils, the neighborhood in which a school is placed will be frequently sufficient to tell the story. Some schools are attended, for the most part, by children whose parents are considerably above the average in culture and material possessions; in others, the majority of the pupils are from homes where the parents themselves are less cultured and less favorably situated financially, but are fully as solicitous for the welfare of their children; while some schools are situated in the slums, where the pupils have the poorest of supervision at home. In regard to the size of the classes and the average age of the pupils, the facts are, of course, at hand.

A study of the figures in the table from these several standpoints will show conclusively that the influence of all these factors has been very much exaggerated, and, therefore, that the cause of unfavorable results must be sought, largely, at least, on the pedagogical side. Leaving the discussion of the pedagogical aspect of the problem to a later time, I shall merely endeavor here to show that in suggesting a standard as to time and results, the complicating conditions have all been considered.

If the part that is played by the home environment should be as important as it is generally supposed to be, we should, of course, expect to find that the schools represented in the upper part of the table had been attended by children from cultured homes, while those in the lower part had been attended by those whose home environment was very poor. However, if a line should be drawn across the middle of the table, and the schools above it compared with those below, such a condition would not be found. Indeed, careful inspection would show that the odds were certainly not in favor of the "aristocratic" districts. Of the eighteen schools, three in particular are representative of the latter, and the best of these secured the tenth place, while the others ranked eleventh and sixteenth, respectively. The school that ranked seventh was distinctively a school of the slums. That is to say, the school laboring under the poorest conditions in respect to home environment obtained a better standing than any one of the so-called aristocratic schools. The building which stands fifth is representative of conditions just a shade better than those of the slums. And when I add that, from the standpoint of environment, the schools of City I did not average a single degree better than those of Cities VI and VII, I have said enough to show that the poor results secured in the latter cities cannot be condoned on the ground of unfavorable environment. Thus, as in spelling, so in arithmetic, this mountain, upon close inspection, dwindles down to the size of a molehill.

Equally surprising, if indeed not more incredible, may appear the statement that no allowance whatever is to be made for the size of the class in judging the results of my test. I shall not enter into the details in regard to this point, but will dismiss it with the remark that the number of pupils per class was larger in the highest six schools than it was in the schools of City VI, and that the classes were exceptionally small in the school that stands at the lower end.

The relation between the age of the pupil and his arithmetical power is a question which has been very widely discussed. Some educators have taken the stand that there is not much object in laying stress on arithmetic in the early years; that arithmetical power increases naturally with age; and that any deficiency that may be manifest in the lower grades will be readily compensated for by the rapidity with which the children progress when they enter the higher ones. The belief has, therefore, become quite general that there is a direct relation between age and results; and for this reason many teachers might be inclined to attribute the variations in results to differences in the ages of the pupils, grade for grade, in the different schools.

As in other pedagogical problems, so in this, facts prove how little dependence is to be placed on *a priori* reasoning. That there is a regular improvement in arithmetic as the child at school advances in years is perfectly true, and this point is very clearly shown by the fact that, with very few exceptions, the class averages on the repeated problems improve from grade to grade. But this in itself does not give us the information we are seeking. In the first place, the figures alone do not tell us to what extent the improvement was due to age, in how far it was the result of practice, or what part had been played by instruction. Besides, it should not be forgotten that the problem with which we are now dealing is not a qualitative, but a quantitative, one. That children improve as they advance from grade to grade may be taken for granted. It is the rate of progress with which we are concerned.

That the differences in results in the schools examined were not due to differences in age may be readily shown by eliminating the age factor entirely, which may be done by taking the age of pupils instead of the grade as the basis of comparison. For this purpose Table II has been prepared. That table is based on the results obtained upon problems that were carried thru three grades. The fourth, fifth, and sixth year papers contained three problems in common, and this is true also of the papers for the sixth, seventh, and eighth grades.* The table shows, first, the results obtained in the fourth, fifth, and sixth grades of the highest six schools as compared with the lowest six, taken collectively, upon the repeated problems; secondly, those obtained upon the repeated problems in the sixth, seventh, and eighth grades of the highest five schools as compared with the lowest six; and, thirdly, the average ages of the pupils in the grades and schools stated.

---

*See the first three problems for the sixth and eighth years on pp. 269 and 270.

I did not have an opportunity to obtain the ages of the pupils of all the schools considered in Table II. However, in computing the average ages the majority of these schools were represented, and the complete returns could not have changed the figures more than a month or two one way or the other. If the comparisons had been made between the schools where the ages had all been obtained, the showing would have been practically the same as in the table. Moreover, in arithmetic, the differences in the results are so very marked all along the line that microscopic distinctions are in no way called for.

Table II.

	4		5		6			6		7		8	
	Average age.	Per cent.	Average age.	Per cent.	Average age.	Per cent.		Average age.	Per cent.	Average age.	Per cent.	Average age.	Per cent.
Six highest schools .	11.9	62.8	12.6	84.3	13.4	96.3	Five highest schools	13.4	49.5	14.1	71.9	14.11	90.4
Six lowest schools .	11.0	29.0	12.0	49.8	13.4	61.4	Six lowest schools...	13.4	11.0	13.11	29.0	14.5	38.0

A glance at the ages will show that the average age of the pupils of the schools that showed the best results was about five months higher than that of the pupils of the schools that did poorest. For the fourth grade the difference was nine months, and for the fifth and eighth grades, six months. In the sixth and seventh grades, however, the ages were practically the same. But the factor of age may be completely eliminated by comparing the results of a given grade of the successful schools with those of a higher grade of the unsuccessful ones. Thus, in the fourth grade of the successful schools the average was 62.8, as against 49.8 in the fifth year, and 61.4 in the sixth year of the unsuccessful ones. Consequently, in this instance, the results in the unsuccessful schools did not equal those of the successful ones until the pupils were nineteen months older and had had the advantage of two years' additional instruction and practice.

Similar comparisons in regard to the higher grades show even a greater disparity, as the eighth year pupils of the unsuccessful schools did not even catch up to those of the sixth year of the successful ones. In the case of the sixth and seventh year classes, where the ages were practically alike, the full class averages may be compared. For the sixth year they were 75.6 as against 41.1; and for the seventh year 61.4 as against 22.8. These facts certainly constitute a striking blow at the theory of those who believe that arithmetic is a matter of natural evolution.

One other point here calls for consideration. The idea is generally accepted that an examination in arithmetic given in the morning will show much more favorable results than one given in the afternoon; and it might, therefore, be supposed that the schools that did best had been examined in the morning, and *vice versa.*

When the table is analyzed from this standpoint the indications appear to favor the theory; but the quantitative aspect has certainly been exaggerated. Looking at the facts, we find that the first four schools in the order of merit had been examined in the morning. However, in the school which stands fifth, the examination was given in the afternoon, and the average was 64 per cent., or only 3 per cent. lower than the school that ranked third. The point of particular interest is the fact that the school, by being examined in the afternoon, did not lose its classification. The first three schools of City I were examined in the morning and did well. The fourth school of that city was examined in the afternoon and also did well.

In City VI, School 1 was examined in the morning, and did

3 per cent. better than those examined in the afternoon, obtaining an average of 39 as against 36; and School 1, City VII, by being examined in the morning, secured an average of 40 per cent. In a word, Schools 2 and 3, City VI, were examined in the afternoon and did poorly; School 1 of the same city was examined in the morning and also did poorly. And the same remarks apply to City VII. Thus, while there seems to be some advantage in an examination given in the morning, the figures appear to leave no doubt that a school that can do well in the morning can also do well in the afternoon, and, conversely, that a school that does poorly in the afternoon will also do poorly in the morning. I have heard it stated that the difference between a morning and an afternoon examination will probably reach 20 per cent. If so, what would have been the result if School 1, City VI, and School 1, City VII, had been examined in the afternoon?

Now, taking all the facts into consideration, which of the schools examined may be said to have made a satisfactory showing? Personally, I believe the demand is not placed too high when the line dividing the satisfactory from the unsatisfactory schools is drawn across the table under School 4, City I, the last of the buildings making creditable averages in all the grades. In the school next in order the results were more than satisfactory in the fourth, fifth, and sixth grades, but unsatisfactory in the seventh and eighth. All the other schools showed too many weak spots to be passed as satisfactory.

The general average for all schools examined was, in round numbers, 55 per cent., made up as follows: 60 per cent. for the fourth year, 70 per cent. for the fifth, 60 per cent. for the sixth, 40 per cent. for the seventh, and 50 per cent. for the eighth. In view of what the satisfactory schools have shown, it seems to me that 60 per cent. for the fourth grade, 70 per cent. for the fifth, and 60 per cent. for the sixth are reasonable expectations. However, 40 per cent. for the seventh grade and 50 per cent. for the eighth are too low, as these figures are not at all representative of what the successful schools have been able to accomplish, but result from the fact that, in the majority of instances, the seventh and eighth grades were lamentably weak. As the average for the seventh grade of the five successful schools was 6.14, and that for the eighth grade 77.2, I think that less than 50 per cent. for the seventh year and 60 per cent. for the eighth should not be regarded as satisfactory. This would raise the general average from 55 to 60. But a school average of 60 per cent. or more should not be looked upon as satisfactory unless the grade averages were met in four cases out of the five. A provision for failure in one grade is reasonable, because there may have been particular causes of failure in an individual class. The children may have been exceptionally dull, or the class may have been in the hands of a substitute, etc. But, in my opinion, failure in more than one grade denotes a weakness which calls for a remedy. The above figures apply to a test taken at, or any time after, the middle of the year.

In suggesting a standard, it is, of course, understood that the figures mentioned in the last paragraph would only be applicable to an examination whose degree of difficulty were the same as my own. Teachers desirous of knowing how their pupils compare with those of other schools could try the questions as I have given them, or, if they fear that the publication of the problems have diminished the value of the test, they might change the figures without altering the degree of difficulty. However, in due course of time there ought to be no difficulty in establishing standards in arithmetic with mathematical precision. This may be quite readily done by selecting types of examples and determining by research what percentage ought to be obtained on each of them by the class for which they are intended. When this point has been reached, a standard will also have been fixed for a combination of examples of various degrees of difficulty.

I shall not endeavor at this time to suggest a standard in regard to the mechanical side of arithmetic, as a discussion of the details of that phase of the question would carry us too far. I merely wish to call attention to a fact which may appear strange to the majority of teachers, namely, that, from the standpoint of results, the mechanical side of arithmetic has shown itself to be very closely related to the thought side. In other words, the schools that showed the best thinking also made the smallest number of mechanical errors. Indeed, when we compare the first six schools in the table with the last six, we find the school average 69.7 as against 35.8, or double, while the percentage of mechanical errors is 6.1 as against 13, or half. Therefore, broadly speaking, a stipulated demand in regard to the thought side of arithmetic includes, indirectly, a demand in relation to the mechanical side.

A glance at the general average of mechanical errors shows a marked improvement from the fourth grade to the sixth, the percentages being 14.8, 8.1, and 3.9, respectively. Thus, broadly speaking, only half as many errors were made in the fifth year as in the fourth, and only half as many in the sixth year as in the fifth. That the improvement in mechanical arithmetic should be so decided from grade to grade may be readily explained by the fact that simple computation appeals altogether to the memory, which fixes the various combinations of numbers more and more firmly as the result of endless repetition.

The figures show that the number of mechanical errors was larger in the seventh and eighth years than in the sixth. This, however, does not indicate retrogression, but is due to the fact that the basis of comparison was not the same. In the two upper grades the mistakes were made principally in the placing of the decimal point—an element that did not come into play, to any considerable extent, in the lower grades. The seventh and eighth year classes, however, are again compared on practically the same basis, and, as before, the difference is marked in favor of the higher grade.

Let us now see what can be learned from Table I as to the relation between the time devoted to arithmetic and the results. We shall then be in a position to form an estimate regarding the amount of time that should be allowed with a view to the accomplishment of satisfactory results.

A glance at the figures will tell us at once that there is no direct relation between time and result; that special pressure does not necessarily lead to success, and, conversely, that lack of pressure does not necessarily mean failure.

In the first place, it is interesting to note that the amount of time devoted to arithmetic in the school that obtained the lowest average—25 per cent.—was practically the same as it was in the one where the highest average—80 per cent.—was obtained. In the former the regular time for arithmetic in all the grades was forty-five minutes a day, but some additional time was given. In the latter the time varied in the different classes, but averaged fifty-three minutes daily. This shows an extreme variation in results under the same appropriation of time.

Looking again toward the bottom of the list, we find three schools with an average of 36 per cent. In one of these, insufficient pressure might be suggested as a reason for the unsatisfactory results, only thirty minutes daily having been devoted to arithmetic. The second school, however, gave forty-eight, while the third gave seventy-five. This certainly seems to indicate that a radical defect in the quality of instruction cannot be offset by an increase in quantity.

If we now turn our attention from the three schools just mentioned and direct it to three near the top—Schools 2, 3, and 4, City I—we find the conditions reversed; for while the two schools that gave forty-five minutes made averages of 64 per cent. and 67 per cent., respectively, the school that gave only twenty-five minutes succeeded in obtaining an average of 69 per cent. This would appear to indicate that while, on the one hand, nothing is gained by an increase of time where the instruction in arithmetic is faulty, on the other hand, nothing is lost by a decrease of time, to a certain point, where the schools are on the right path in teaching the subject. Perhaps the most interesting feature of the table is the fact that the school giving twenty-five minutes a day came out within two of the top, while the school giving seventy-five minutes daily came out practically within one of the bottom.

From these few facts two important deductions may be made: First, that the unsatisfactory results cannot be accounted for on the ground of insufficient instruction; and, secondly, that the schools showing the favorable results cannot be accused of having made a fetich of arithmetic. These statements are further justified by the fact that the four schools of City I, which, on the whole, stood highest, gave 25 per cent. less time to arithmetic, on the average, than the three schools of City VII, which stood lowest. In City I, the time averaged forty-three minutes, and the results 69.5. In City VII, the time averaged fifty-four minutes, and the results 33.4. Again, the schools of City IV, where the average was a little over 50, had devoted 40 per cent. more time to arithmetic than the schools of City I, where the average, as I have stated, was 69.5.

Now, bearing in mind the standard suggested in regard to the results, what should be set down as a reasonable time allowance?

A glance at Table I will show us that out of the eighteen schools examined, five only succeeded in obtaining satisfactory results, and that the time devoted to arithmetic in these schools varied from twenty-five to sixty minutes a day. Taking the schools in the order of merit, the time allotment was fifty-three, sixty, twenty-five, forty-five, and forty-five minutes, respectively. Thus, in three cases out of the five, success was obtained within a time limit of forty-five minutes. That the highest two schools had given fifty-three and sixty, respectively, does not indicate that they could not have met the demand if the time had been limited to forty-five. Indeed, the results secured in the school at the top show such a very large margin above the demand that a reduction of eight minutes per day could not have sufficed to shatter the structure, and a similar assumption may be made in the case of the school standing next. As the conditions under which the five successful schools labored were not in any way exceptional, I think it is perfectly reasonable to say that the results ought to be satisfactory if the time be limited to forty-minutes a day. All the schools that succeeded proved their ability to do the work in forty-five minutes, and most of the schools that failed proved their inability to succeed in spite of a much larger appropriation of time.

While the facts appear to indicate that forty-five minutes will suffice, they do not show that that amount of time is actually required to accomplish satisfactory results. It is true that out of the five schools giving less than forty-five minutes, the results were unsatisfactory in four. Of the latter, one school gave forty-two minutes and obtained an average of 40 per cent., an average so far below the margin that an additional three minutes could not possibly have saved the day. Similar remarks are applicable to the school where a time allotment of forty minutes was followed by an average of 45 per cent. In City VI, the schools that gave thirty and thirty-three minutes, respectively, obtained averages of only 36 and 39 per cent.; but in the other school of that locality, where the time was forty-eight minutes, the results were not any better. It is clear, therefore, that the failure in these four unsuccessful schools was not due simply to the fact that the time was less than forty-five minutes. Moreover, the school that gave only twenty-five minutes did considerably more than meet the demand.

In spelling, it was not difficult to draw conclusions as to the limit of useful instruction—the point where attention and effort cease and beyond which additional pressure is not rewarded by additional return. A large proportion of the schools having reduced the time, it was possible to institute comparisons on a broad scale between the results obtained where much time had been devoted to spelling and those secured where but little time had been given to it; and it was seen that the schools devoting forty minutes a day to spelling did not do any better than the schools where but ten or fifteen minutes had been given to the subject. This proved that there was nothing to be gained by continuing the instruction beyond fifteen minutes a day. In arithmetic, on the other hand, the basis of comparison from the standpoint of time is not nearly so wide, as it is still the custom in the vast majority of the schools to devote at least forty-five minutes daily to the subject.

In the case of the school that succeeded with twenty-five minutes, the class organization is suggestive. Here each class is divided into two groups, and direct instruction in arithmetic is given for twenty-five minutes to one of the groups, while the other is at work upon some other branch. In the next two schools the classes are also divided into two groups. Of these, one receives direct instruction in arithmetic half the period of forty-five minutes, but devotes the other half to silent work in arithmetic. Under these circumstances it is interesting to inquire whether the children did not get the full benefit of the instruction during the time they spent with the teacher, about twenty-five minutes, and whether they would not have progressed at the same rate if they had given the remainder of the period to some other work.

However, as we are working on a basis of fact, not one of conjecture, we must wait for future investigation to throw more definite light on the matter. For the present, let us accept forty-five minutes as a reasonable time allowance for arithmetic; but let us reduce the allowance if we should succeed in finding a reasonable number of schools showing satisfactory results with less instruction.

The discussion in the preceding pages has tended to show that arithmetic presents certain difficulties which are quite readily overcome in some schools, while seemingly insurmountable in others. As the teachers, taken all in all, were apparently as conscientious and as well trained in the schools that failed as in those that succeeded, it is reasonable to suppose that the principal cause of failure has been a matter of misdirected effort. But whatever the trouble may be, it is evident that its nature must be clearly understood before remedial measures can be intelligently discussed. Therefore, the next step in our researches must lie in endeavoring to discover the source of the trouble; and I expect to be able to present some facts regarding this point in my next article.

J. M. Rice.

Test Questions in Arithmetic

Used by Dr. J. M. Rice.

Fourth Year.

1. A man bought a lot of land for $1,743, and built upon it a house costing $5,482. He sold them both for $10,000. How much money did he make?

2. If a boy pays $2.83 for a hundred papers, and sells them at four cents apiece, how much money does he make?

3. If there were 4,839 class-rooms in New York City, and 47 children in each class-room, how many children would there be in the New York schools?

4. A man bought a farm for $16,575, paying $85 an acre. How many acres were there in the farm?

5. What will 24 quarts of cream cost at $1.20 a gallon?

6. A lady bought 4 pounds of coffee at 27 cents a pound, 16 pounds of flour at 4 cents a pound, 15 pounds of sugar at 6 cents a pound, and a basket of peaches for 95 cents. She handed the storekeeper a $10 note. How much change did she receive?

7. I have $9,786. How much more must I have in order to be able to pay for a farm worth $17,225?

8. If I buy 8 dozen pencils at 37 cents a dozen, and sell them at 5 cents apiece, how much money do I make?

FIFTH YEAR.

1. A man bought a lot of land for $1,743, and built upon it a house costing $5,482. He sold them both together for $10,000. How much did he make?

2. If a boy pays $2.83 for a hundred papers, and sells them at 4 cents apiece, how much does he make?

3. What will 24 quarts of cream cost at $1.20 a gallon?

4. If I buy 8 dozen pencils at 37 cents a dozen, and sell them at 5 cents apiece, how much money do I make?

5. A flour merchant bought 1,437 barrels of flour at $7 a barrel. He sold 900 of these barrels at $9 a barrel, and the remainder at $6 a barrel. How much did he make?

6. How many feet long is a telegraph wire extending from New York to New Haven, a distance of 74 miles? There are 5,280 feet in a mile.

7. A merchant bought 15 pieces of cloth, each containing 62 yards. He sold 234 yards. How many dress patterns of 12 yards each did he have left?

8. Frank had $3.08. He spent ¼ of it for a cap, ⅐ of it for a ball, and with the remainder bought a book. How much did the book cost?

SIXTH YEAR.

1. If a boy pays $2.83 for a hundred papers, and sells them at four cents apiece, how much does he make?

2. What will 24 quarts of cream cost at $1.20 a gallon?

3. If I buy 8 dozen pencils at 37 cents a dozen, and sell them at 5 cents apiece, how much do I make?

4. A flour merchant bought 1,437 barrels of flour at $7 a barrel. He sold 900 of these barrels at $9 a barrel, and the remainder at $6 a barrel. How much did he make?

5. If a train runs 31⅔ miles an hour, how long will it take the train to run from Buffalo to Omaha, a distance of 1,045 miles?

6. If a map 10 inches wide and 16 inches long is made on a scale of 50 miles to the inch, what is the area in square miles that the map represents?

7. The salt water which was obtained from the bottom of a mine of rock salt contained 0.08 of its weight of pure salt. What weight of salt water was it necessary to evaporate in order to obtain 3,896 pounds of salt?

8. A gentleman gave away ⅐ of the books in his library, lent ⅙ and sold ⅕ of what was left. He then had 420 books remaining. How many had he at first?

SEVENTH YEAR.

1. If a map 10 inches wide and 16 inches long is made on a scale of 50 miles to the inch, what is the area in square miles that the map represents?

2. The salt water which was obtained from the bottom of a mine of rock salt contained 0.08 of its weight of pure salt. What weight of salt water was it necessary to evaporate in order to obtain 3,896 pounds of salt?

3. A gentleman gave away ⅐ of the books in his library, lent ⅙ of the remainder, and sold ⅕ of what was left. He then had 420 books remaining. How many had he at first?

4. A farmer's wife bought 2.75 yards of table linen at $0.87 a yard and 16 yards of flannel at $0.55 a yard. She paid in butter at $0.27 a pound. How many pounds of butter was she obliged to give?

5. If coffee sold at 33 cents a pound gives a profit of 10 per cent., what per cent. of profit would there be if it were sold at 36 cents a pound?

6. Sold steel at $27.60 a ton, with a profit of 15 per cent., and a total profit of $184.50. What quantity was sold?

7. If a woman can weave 1 inch of rag carpet a yard wide in 4 minutes, how many hours will she be obliged to work in order to weave the carpet for a room 24 feet long and 24 feet wide? No deduction is to be made for waste.

8. A fruit dealer bought 300 apples at the rate of 5 for a cent, and 300 at 4 for a cent. He sold them all at the rate of 8 for 5 cents. What per cent. did he gain on his investment?

EIGHTH YEAR.

1. If a map 10 inches wide and 16 inches long is made on a scale of 50 miles to the inch, what is the area in square miles that the map represents?

2. The salt water which was obtained from the bottom of a mine of rock salt contained 0.08 of its weight of pure salt. What weight of salt water was it necessary to evaporate in order to obtain 3,896 pounds of salt?

3. A gentleman gave away ¼ of the books in his library, lent ⅓ of the remainder, and sold ½ of what was left. He then had 420 books remaining. How many had he at first?

4. A man sold 50 horses at $126.00 each. On one-half of them he made 20 per cent. on the other half he lost 10 per cent. How much did he gain?

5. Sold steel at $27.60 a ton, with a profit of 15 per cent., and a total profit of $184.50. What quantity was sold?

6. A fruit dealer bought 300 apples at the rate of 5 for a cent, and 300 at 4 for a cent. He sold them all at the rate of 8 for 5 cents. What per cent. did he gain on his investment?

7. The insurance on ¾ of the value of a hotel and furniture cost $420.00. The rate being 70 cents on $100.00, what was the value of the property?

8. Gunpowder is composed of nitre 15 parts, charcoal 3 parts, and sulphur 2 parts. How much of each in 360 pounds of powder?

Autobiography of a Teacher. IV

"Adventures Are to the Adventurous"

AS I have said, my own first plunge into the world of affairs was an heroic one, for it took me into the wilderness of Eastern Kentucky, something like a hundred miles from the railroad. Just why I selected such a remote spot to begin my quest for fame and fortune, I am quite at a loss to remember. There was no immediate haste for me to be making money, for the family fortunes had by this time so far repaired themselves that we were in wholly comfortable circumstances. I think that it must have been the first work to present itself which really satisfied my geological conscience. It may also have been that the spice of adventure which it promised was not unwelcome. It is sometimes observable that your very quiet people have hidden away under their demure and drab exterior a genuine appetite for adventure which would quite respectably fit out the most dashing cavalier. I detect such a strain in myself, and it both amuses and pleases me to find that it is not yet dead.

This journey to Kentucky was the longest that I had ever undertaken and was the beginning of very wide wanderings over land and sea.

I have just been reading Haeckel's last book,—"The Wonders of Life,"—a book, it seems to me, full of more than questionable philosophizing, but rich, nevertheless, in wise and beautiful observations about nature. He calls attention to those organisms which move about quite freely when they are young, and become stationary in mature life. It seems that this settling down is attended by quite disastrous results, involving as it sometimes does, the loss of bones, or even of the head itself! Both Haeckel and Arnold Lang, who have studied the same phenomena, are disposed to draw the conclusion that the stationary habit in both animals and man in many cases means an absolute loss of power, and in all cases a lessened possibility of development. Such a point is much too good not to be seized upon by so inveterate a wanderer as myself. Perhaps it does not quite justify the fact that for the past dozen winters I have lived in a dozen different places, but it is to be hoped that it may later when I come to settle down and make use of my gains.

My going to Kentucky came about very naturally. While I was looking about for something suitable to do, a cousin of mine, who had, quite unknown to myself, been taking a very kindly interest in my career, sent for me to go and see him. Such an unexpected summons also suited my fancy and I was not slow in responding. I was hardly acquainted with my cousin personally, but I found him a delightful old gentleman, at least he seemed old to me then; in reality I suppose that he was about forty-five. He explained to me that two acquaintances of his, gentlemen of considerable wealth, owned something like 200,000 acres of land in Eastern Kentucky and Southwestern Virginia which they proposed to develop and even add to, and that they wanted a geologist to examine the whole tract. It is safe to say that I felt very important at the prospect of such responsible work.

My cousin quizzed me a bit in a good-natured way, and even put me thru a very informal examination. I always hated examinations, but as my old professor of geology used to say to me, "You might as well get over your aversion to examinations, for out in the world you will have them *every single day!*"

I have found this to be true, and I have not always had such kindly examiners as my delightful old cousin. His capitalist friends, he said, knew their small principality to contain unlimited quantities of coal and iron; and believed that it also covered rich deposits of gold and silver and copper and lead. That the list of treasures was not even longer than this was probably due to their own lack of chemical knowledge. My cousin did not take these large expectations too seriously and laughed with me over gold specimens that had clearly been manipulated.

The upshot of the matter was that the capitalists offered me the work and that I accepted. I think they must have taken me on faith, for I was a boy of twenty, without any practical experience, and of so slight a physique as to suggest reasonable doubts as to whether I could successfully cope with even the bodily demands of the enterprise. They agreed to pay me seventy-five dollars a month and all my expenses. I do not remember how this pay impressed me, but I hope I was duly appreciative, for even now, in the present expansive state of the financial mind, it seems to me very good for such a mere stripling.

I was to start in August. When the time came my mother was ill in bed, and I was wholly miserable at the prospect of leaving her. The propriety of waiting over a few days does not seem to have occurred to either of us. But then, as my sister says, we have the blood of martyrs in our veins! In addition, I believe that Mr. Jonathan Edwards, if not a direct forbear, was at least a kinsman,—so much is accounted for. It was a cruel thing to do, to go away at such a time. Even after more than twenty years it makes me catch my breath to recall the misery of that parting.

I have already observed, in the first paper, that my most commanding ancestors had the preaching habit, and added the reflection that I agreed with Haeckel as against Weissmann, that acquired characteristics are transmitted! When one confesses so openly to a fault, one expects, of course, to be allowed to indulge it without further reprobation. So I may offer, with a perfectly clear conscience, at least one preachment. And it is this: I have since come to see that it is a crime of the first magnitude to allow any supposed duty of an exterior and mechanical sort to interfere with the higher obligations imposed by human relationship. Those divine comrades whom God in his goodness allows us out of the vast loneliness of space to discover and make ours, we owe our first and supreme duty. Indeed, it now seems to me that the other acts can claim the dignity of duty only as they serve those whom we love. He who loves most can most fulfil the duty of life. I did not see this when I was twenty. I am not sure that I saw it when I was thirty. At forty I began to see it, and it still has about it the glamour of a great revelation. Happily, my mother recovered, and I had her with me for several years longer, but I dread to think of the bitter, life-long regret that would have been mine, had it happened otherwise. Perhaps these mistakes, these crimes, I may even call them, were veritable teachers. Certain it is that I live now in a different world, a world in which things human are the element of supreme moment.

So I went to Kentucky. But the crime of going was punished then and there, for never did more disconsolate knight set out to seek his fortune in the unknown. The train left at midnight. My father went with me to the station. The city had about it the mystery of quiet and of the night. Something like terror took possession of me. The recurrent thought passed and repassed thru my mind, "Perhaps I shall never see my mother again! Perhaps I shall never see my mother again!" And so my first real journey into the world began in genuine agony, and all because I had not been taught the real values in life, had not learned to put persons before things.

The railway journey took twenty-four hours, and landed me, again at midnight, at what was then the small frontier town of Bristol. Part of the town was in Virginia, and part in Tennessee. I got out of the train, a heavy valise in one hand, a surveyor's tripod in the other. A correspondingly heavy trunk was likewise vomited forth into the darkness. I had expected to be met by an agent of my two capitalists, but no one was at the station. The little town itself lay wrapped in complete darkness.

I think that I was almost the sole passenger. The sleepy but friendly station master took me to the end of the platform and gave me careful directions how to find the agent's house. I started off into the darkness without any great feeling of confidence that I should land in a bed that night. I had gone only a short distance when I saw a lantern moving on the other side of the broad street. Thinking that it was probably my man out in search of me, I started to cross. I got half way over, when *voila*, my valise flew in one direction, the tripod in another, and I found myself curled up in a ball, and lying on my back! It was all so very sudden that I did not know what had happened to me. My outcry brought the lantern to my rescue. I found that I had been tripped up by a pile of sharp, broken limestone to be used in mending the road. My clothes were rather the worse for the encounter, but so quickly had the instinct of self-preservation acted (and I mention the incident on that account), that quite unconsciously I rolled into a ball, face and hands in the center, and escaped without a scratch.

The lantern, as I had supposed, was carried by the man I most wanted to see. With his help, I gathered up my belongings, and was soon settled for the night in one of those comfortable little cottages, vine-covered and veranda-surrounded, which were then characteristic of the South. Since she has taken to importing those ready-made designs, which, fitting everywhere, really fit nowhere, the new South has not been so happy in her architecture. I slept like the Seven Sleepers.

On the following day, with the help of my host, I secured a pair of mules, a driver, and a covered wagon. I mention them in the order of their endurance. I mistrusted the wagon from the start. It would probably have withstood the driver and myself, for we were both rather slender, but my trunk was wickedly heavy. It contained some very solid surveying instruments and almost enough books of reference to supplement my own profound ignorance. But for a time, that is to say, for two or three days, all went well. Our route took us across the southwestern corner of the Old Dominion, over the range of the Cumberland Mountains, into the region since made famous by Mr. Fox's charming story, "The Little Shepherd of Kingdom Come," charming at least in its early chapters. Had it not been for my anxiety about my mother, I should have thoroly enjoyed the journey. Even as it was, the fresh air, the bright skies, the natural beauty brought out all my temperamental optimism and I easily assured myself that my mother was better. It took us four days to make the hundred miles; for my poor wagon at last broke down completely. We left it at a wayside smithy and got a stout mountain wagon for the rest of the journey, so stout indeed that it had no springs and one had to stand up to escape being jolted to pieces. For the greater part of the way I walked or ran alongside of the wagon, while my too heavy luggage paid for its sins by a shaking up which almost brought dissolution.

Late on the afternoon of the fourth day we reached our destination, the tiny town of Whitesburg, in Letcher County. It lies on the upper waters of the Kentucky, and occupies a little stretch of level land between the river and a low range of roughly gullied ridges. One straggly street runs parallel to the river, and midway between it the naked red ridge. Many of the houses were fair sized, even pretentious in appearance, and would have looked extremely comfortable after the many log cabins I had passed on the journey were it not that they were commonly unfinished. Second story doors opened on balconies that had never been built. Gaps yawned in the weather boarding between floors for porch rafters that had never been inserted. Dormer windows filled with boards in place of glass turned blind eyes toward the passer-by. Pigs were everywhere, in the streets, in the gardens, in the muddy puddles between the two. One who has never seen these Southern villages can hardly realize the sense of desolation produced by their disorder and unfinish. That first afternoon I felt pretty far from home. In fact, as it took four or five days for the mail to reach me, I was for all practical purposes as remote as if I had been in the far West.

I was fortunate in finding a home with a very kind and intelligent family. Their house was one of the few that had ever been really completed,—a roomy brick structure on the upper side of the street. My own apartment was a large front room in the second story. It had plenty of windows and a good sized fire-place. Its one defect was that every time I moved across the room, it shook so noticeably as to suggest to my engineering mind a speedy and disastrous collapse. This never occurred, however, and in my subsequent wanderings among the mountains, I came to look upon these headquarters as a veritable haven of comfort, even of luxury.

In India, the natives regard the Englishman as an "uncomfortable, unaccountable work of God." It was I think only my youth and high spirits that kept me from a similar verdict in Kentucky, for my ideas differed so radically from theirs, and especially in the matter of time. Having gone out there to geologize, I proposed to do it,—understandable enough,—but I also proposed to do it at once,—less understandable,—for in addition to my own nervous energy, I had my Puritan conscience along with me. I think I never quite forgot that my time was paid for, was not my own, and that I must use every available moment to further the purpose for which I had been sent out. That very night, if I remember correctly, I set about my first preparations, getting a guide and a horse. By way of guide, I secured a handsome young mountaineer by the name of Adams. He came to see me in my room, and either curiosity or his idea of politeness prompted him to remain an awkwardly long time. Partly to make conversation, I asked him if Whitesburg was a pretty orderly place. I shall never forget his answer: "Wal, thar's right smart killin' goin' on." Adams himself had never killed a man. Once he had fired with intent to kill, but thanks to mountain whiskey, his aim was less sure than usual, and he had missed the mark. He acknowledged that he was glad he *had* missed. Yet he proved a good comrade, faithful and considerate always, and I trusted him to the utmost. This was also true of another man with whom I had considerable to do, who had, since the war, killed between fourteen and twenty-one men,—estimates differed—but who was personally as gentle and kind to me as a father. I dubbed him "the firm man." I think he would have done anything in the world for me. Indeed, he afterwards assured my father that I was quite as safe in Kentucky as right in my own home; and that if any one had touched a hair of my head, he "would have smashed his ugly mug for him!" It is hard to picture the effect of such a statement when merely seen in cold print. One must add the gentle, almost tender drawl peculiar to the mountaineers of the South.

I was as fortunate in my horse as in my guide. Adams rode a little black mule, as small as he himself was large. I used to fancy that if Adams but stretched his long legs, the mule must surely walk out from under him. My own mount was better, a chestnut mare of moderate size, who was willing to travel on the road or off it, and who made her way across fields and thru forests with rare success. When the ground got too rough or too steep, she would stop and look around at me, as much as to say, "Well, really, you don't expect me to go any further, do you?" Commonly I agreed with her, got off, tied her to a tree, and went on afoot, looking out the while for rattlesnakes and copperheads. As I had recently been reading Dickens, I called my mare "Little Nell." I should really have called her Rosinante, for Adams and I on our curious mounts and picturesque errand, often reminded me of Don Quixote and his redoubtable squire.

Two hundred thousand acres of land is a large amount, and combining loss of time thru floods and bad weather, it took the greater part of three months to cover it. The holdings varied from fifty or a hundred acres up to large tracts of ten or even thirty-five thousand acres, and each bit of property had to be visited. It was wholly virgin territory. While most of the land was on a true coal foundation, the carboniferous, not a single coal mine had ever been opened up. There were small clearings around the occasional cabins, patches of tobacco, straggling fields of corn, little apple orchards, rough pastures, but most of the land was *au naturel* primitive forests and untouched mountainside. There were native surveyors running off the boundaries of these varied tracts, but for my own guidance I had not so much as a rough sketch map. I had copies of the deeds, but they were so far from accurate that the final course, "so-and-so many rods back to the beginning," was quite likely to land one a mile or even more from the specified point.

With Whitesburg as a center, Adams and I radiated in all directions. We usually left headquarters early Monday morning and did not return until Saturday night. We had to stop wherever night found us, and seek accommodation in the nearest cabin. Often it contained but one room. This served for kitchen, dining-room, and bed chambers. The living room might be said to be all out doors. The cooking was done on the hearth and usually there were no windows. A bed stood in each corner, and in one of these Adams and I found such rest as we could. I have vivid recollections of a night spent in such a cabin when there were thirteen persons in the one room, two dogs, and a burning lamp. Occasionally we were better off and had a whole cabin to ourselves. The food, too, was of the roughest—black coffee, bacon, and corn-bread. Sometimes, in the better cabins, we met fried chicken, apple sauce, and wheat biscuit. Beef and potatoes were rare. There were plenty of sheep, but the mountaineers had a curious objection to mutton, and seldom or never ate it. As I never touch pork, my own fare was very limited, and I wonder that I kept up and did my work. It must be that in the plenty of civilization we all eat more than is good for us. I recall one keen autumn morning when a long ride had given me a genuine boyish appetite. I looked over the dinner table in dismay, for the only things on it that I was willing to eat were a saleratus biscuit and a pickled cucumber. But alas, the biscuit opened with a suspicious cleavage—there was a goose feather in the center of it and so my dinner reduced itself to the one pickle. My host never noticed how badly I was faring. He ate with the bowed head of one who says the perpetual grace.

News of myself and my work soon spread thru the mountains and I came to be generally known as "the mineral man." I think the mountaineers liked me personally, for I felt a genuine interest in them and tried to tell them interesting stories of the far-off world of railroads and cities, about which most of them knew absolutely nothing. Many of them had never seen a railroad, and some of the men confessed quite frankly that they would be "plumb scairt" to see a locomotive. It is hard to realize how primitive the life was. It is hard for me, writing, as I happen to be, on a luxurious trans-Atlantic liner, to believe that I did not imagine that life, rather than experience it. One evening, for example, Adams and I reached a cabin about nightfall. The family had already had supper, but willingly got us ours. They had no lamp, no candles, not even the customary tallow dip. We ate our meals by the light of something still more primitive, a pine torch held by a mountain girl, so like a creature of the woods that she seemed different in kind from the women of my home acquaintance. The older people regarded me with open-mouthed curiosity, and I could hardly blame them. Here was a slender youth, of different speech, dress, manners, carriage, and driven by motives not only not understood but wholly incomprehensible. Finally the old woman blurted out to her husband, "Eli, they tell me thar's as many as a thousand people in the place whar this man lives." Instead of letting it go at that, which would have been sufficiently wonderful, my alert sense of truth made me hasten to add that there were over eight hundred thousand,—a bit of liberalness which I am sure got me the reputation of being considerable of a liar.

At another cabin, a lad, he must have been sixteen at least, asked me if we had a railroad in Philadelphia. And this he did quite seriously and not after the manner of a New Yorker. When I replied that at one station a train arrived or departed on an average every three minutes during the whole twenty-four hours, he said nothing audibly, but his face put me down as a person to be classed with Ananias and Sapphira.

So long as I was recognized as "the mineral man," I was perfectly safe. I think the general attitude of the mountaineers was truthfully expressed by old man Polly (his wife by the way was Mistress Polly Polly), when he assured me that he would take better care of me than he would of his own Lou. In addition to their personal friendliness, the mountaineers took pride in seeing to it that no stranger in their midst came to any harm. It was only when I was mistaken for someone else that I stood in any real danger. Surveyors, for example, were not in good repute. Many of the mountaineers occupied lands which they had never taken the trouble to patent. They had, of course, the moral right of prior occupation, but in the eyes of the law they were squatters, and the land belonged to those who had covered it with "blanket" surveys and paid the nominal fee, I think it was six cents an acre. Consequently the running out of the boundary lines meant ultimate eviction. The simplest way out of the trouble was to shoot the surveyor, preferably in the back, from a clump of bushes, and this was occasionally done. One morning,—a heavenly morning it was, too,—I was riding quite alone over a mountain trail. Adams could not go with me into that particular district, as the deputy revenue officer lived there and had a warrant for the boy's arrest. I omitted to mention that my handsome mountaineer, in addition to other activities, was a moonshiner, a believer in State Rights as opposed to Centralization, and made mountain whiskey by moonlight without paying the tax. And so I was riding quite alone.

As I came down the mountain, I skirted a little clearing in which an old man was at work. I called out a cheery salutation. The old man looked up and remarked with perfect good nature, "Wal, they haint killed you yet!" I doubt if the gentle reader can imagine the effect of such words, coming from the heart of the wilderness, and addressed, if you please, to yourself. The old man had mistaken me for a surveyor, and explained that "they allowed they'd kill the surveyors."

Revenue officers were even less acceptable than the poor surveyors. The best people in the mountains were moonshiners either in sympathy or in actual practice, and quite honestly believed that they had a perfect right to distill their own whiskey and brandy, and that the Federal Government was manifestly and inexcusably interfering with their natural rights in placing a tax upon the liquor. In this state of public opinion the revenue officer was a very unpopular person, a common enemy, and quite as likely as not to die with his boots on. The chance of violence was increased if he came from outside, and was open to the suspicion of being a spy. It is amusing that so peaceable a youngster as myself should have been mistaken for an officer, but this happened several times and got me, I suppose, into some real danger. At other times, it led to nothing more serious than an absurdity.

But my narrowest escape from a well-aimed bullet came one night when Adams and I got mixed up in one of those dreadful family feuds for which Eastern Kentucky was at that time all too famous. I knew perfectly well that the feud was on, but I could go with entire safety from one party to the other, and was at the time so much absorbed in my geological work, that I quite forgot the existence of the feud. We had been delayed, one dull, stormy day, until after dark, and had some difficulty in finding shelter. In a country wholly devoid of hotels, the law of hospitality—always very exacting in the South—demanded that any stranger must be entertained, but it also provided that he must present himself before dark, and must not dismount until invited to do so. I had learned a part of the mountain etiquette, but not all, and my ignorance came near costing me dear. Adams and I made our way thru the darkness, silently and unannounced, to the very cabin which happened that night to be the headquarters of one party to the feud. We were naturally mistaken for the attacking party. We left our horses tied to the fence, and came quietly thru the orchard all unconscious of our danger. It was perhaps the very boldness of this supposed attack that saved us from being shot then and there. As it was, the besieged, eight or a dozen of them, took to their heels, and spent the night in the woods, while I and my one squire marched in and occupied their quarters! The woman of the house ungraciously got us our supper and showed us to our beds, ungraciously got our breakfast and took our money. It was not until we rode away the following morning that I learned from Adams the true state of affairs, and the danger we had been in.

Meanwhile my geologial work was going much to my mind. Fortunately for me, the geology of Eastern Kentucky is very simple, or I might not have been able to read it so easily. One vast fault extends thru this part of the State, throwing the subcarboniferous limestone to the surface along the flank of Pine Mountain. On the top of this came the telltale Milestone Grit, the recognized floor of the Coal Measures. Aside from this one up-throw the rocks were practically horizontal and displayed the usual successions of sandstones, slates, and shales, interspersed with beds of coal varying from a few inches to as much as ten feet in thickness. It is essentially a coal country. There were no considerable bodies of iron ore discoverable, merely scattered "Ridneys" too poor and too occasional to be the basis of an industry. My own small knowledge of Economic Geology spared me from expecting the precious metals, or even copper and lead. There was, of course, the traditional story of astute Indians and needy hunters who had resorted to Pine Mountain to get lead for their bullets, but no one could quite find the locality.

I did not call it by that name, but the psychology of the mountaineers always interested me, and particularly their attitude towards Nature. They had spent their whole lives in the mountains, and yet knew so little about them. Very frequently the mountain stream uncovered beds of coal only a few inches thick, but bare for a score or more of feet up stream. Almost invariably such beds were reported to me as being of unlimited thickness. When I explained that a bed of coal a few inches thick could never be mined with profit, the general and comforting opinion was that the bed was young yet, and might in time be expected to grow. One rare autumn day I stopped for dinner with an old man who told me that he had very much rich ore on his place. I inquired how he knew it to be valuable, and found that he had it from a so-called geologist who had passed thru the country some twenty years before. When I asked what he pronounced the ore, to be, the old man, replied without the least suspicion that he was talking nonsense, "Oh, he didn't know what it was, but he said it was the richest thing he had ever seen!"

I remained in Kentucky for three months, and completed a report which, tho clumsy and quite badly arranged, was nevertheless, I believe, an essentially true report. In spite of the very real hardship, I got a genuine pleasure out of my mountain life. An intense love for nature was doubtless an original part of my make-up, and was deepened and intensified by this experience. I detect in myself an increasing dislike for village life, for small towns, and second-rate cities. On the one hand I love the cream of civilization,—Boston, Geneva, Florence, Kyoto,—places where one can get the best in music, thought, art, and beauty. On the other hand, I love the wilderness, its solitude, its primitiveness, its perennial and haunting beauty, and love it perhaps with the deeper and more abiding love. Whether the skimmed milk of the intermediate world is a social necessity, is a question which I have never been able to answer.

But I was glad to be going home. The journey back to Bristol was an emotional experience. I sent my luggage out by teamster, and traveled myself on horseback. What a beautiful journey it was! The days had an Indian summer softness about them; the fields were all shades of delightful yellows and browns; the trees, it is true, were bare, but they sent up shapely limbs and branches against the friendly blue of the sky; the distant hills and forests were a tender smoke color. At night, I gathered with other wanderers in front of great wood fires, the circle widening as the goodly logs dissolved into a devouring heat. I shall always remember my ride out of the wilderness, for it taught me to love the country in winter almost as much as in summer. And all the while, my heart was singing, for I was going home.

It was again midnight when I reached Philadelphia. My father was at the station to meet me. At home the family circle was complete. My mother was well; my sister was at home;

my uncle was there; our good old housekeeper, Miss Robinson, was with us. I could ask nothing more. When the first ecstatic greetings were over, my sister surprised me by asking, of all questions in the world, whether I had eaten pork during my absence. When I assured her that I had not, little Miss Robinson slipped away and soon returned with a dollar bill in her hand. It seems that they had been betting about it, these two good friends of mine, Miss Robinson, recalling perhaps the keenness of a boy's appetite; betting that I would have to overcome my prejudice, and my sister, remembering my firm will (sometimes she calls it obstinacy!) betting that I would not. But really I think it was not obstinacy so much as the fact that I was at heart a Brahmin, and somewhat inexorable in my rule of life. And so this first little journey into the world, which began in an unforgettable agony, ended in a merriment that was but the surface of a very deep happiness.

It may seem that these Kentucky adventures are not strictly german to my professed purpose, but in reality I believe them to form a genuine part of my education, certainly a part which I should be most unwilling to have foregone. I have now a little brother who is very dear to me, and I find myself wondering whether I should be willing to have him meet similar adventures. Perhaps not, but for myself I feel that they were both educative and needful. They made me more tolerant; they made me less dependent upon creature comforts and conveniences; above all, they helped to banish fear from my life. And such lessons are well worth three months in a Kentucky wilderness.

C. Hanford Henderson.

The one thing that will keep the mind in good health is *growth*. Shall we who are laboring for the growth of others let our own minds lie fallow? Example is a mightier factor in education than pedagogic know-how.

Literature and History

The Revival of Ancient British Legend

ONE strong plea is voiced by the Committee of Seven for a revival of the study of ancient British history in the public schools. "It is essential," says the Committee, "that the common practice of neglecting Welsh, Scottish, and Irish history be abandoned in American schools; otherwise no idea is gained of the composite nature of the nation which has built up the British Empire and spread abroad the knowledge of English institutions and the use of the English language."

This is but a phase of the present Keltic revival, which is in evidence thruout the English-speaking world, and is influencing art and literature, education, and popular thought and feeling. With the revival of Keltic history relating to the British Isles must come, of course, a revival of the prehistoric legend of ancient Britain, which has a bearing upon history, and which is intimately related to literature and art.

Of all prehistoric legends, that of the war of Troy, as developed thru ages of tradition in various lands, is one of the most important. While not historical, it forms a sort of introduction to the histories of Greece, Rome, and Britain. It has been differently viewed by three successive classes of critics. In former centuries it was accepted as essentially true in all three of its principal parts, and was gravely recorded, with conjectural dates, in Grecian, Roman, and British histories.

Three centuries ago, the man who wrote a history of Greece began by relating the causes leading up to the Trojan War. He told how the Greek States became united under one leader, Agamemnon, "King of Men," and overthrew the great, proud, and wealthy city of Troy, in a war which shed immortal glory on the Greek people, and which, by offering a common heritage, fused them together, influencing their whole subsequent career.

Three centuries ago, the man who wrote a history of Rome began in the same way, using the same materials. He then eft the Greek story, and proceeded out upon the long Roman branch which grew from it. He told how a Trojan prince, Aeneas, escaped from the burning city to a place of safety, where he was joined by many other Trojan refugees; how the refugees built ships and made their way to the western coast of Italy, where they mingled with the Latin people, Aeneas marrying the daughter of the Latin king, and succeeding to the throne; how centuries later a descendant of Aeneas, named Romulus, built the city of Rome. This story gave the later Romans a share in the glory of the Trojan War, and supplied them with a noble ancestry of which they stood much in need, as an offset to the boastings of the Greeks.

Three centuries ago, the man who wrote a history of England began in the same way, following the Greek story and the Roman branch which grew from it. He then took up the British branch which grew from the latter. He told how Brut (a great-grandson of Aeneas), accidentally slew his father, Sylvius, and became an outlaw and an exile; how Brut wandered to Greece, where he found many unhappy Trojan slaves, the descendants of prisoners of war; how he led the slaves in a successful insurrection, and conducted them in a fleet thru the Mediterranean and into the open ocean, then turned northward and reached the great island of Albion, where, in the fulfilment of prophecy, he established a new Troy, which was to become the seat of a world-wide empire; how the island was named, in his honor, *Brutain* (Britain), and his capital was called *Troy Novant* (New Troy), his people being known as *Troynovantes* (see "*Trinovantes*" of Caesar); how the giants of the island were exterminated by such heroes as Corineus, Canutus, and Debon (for whom Cornwall, Kent, and Devonshire were supposed to have been named). Then followed a systematic legendary account of reigns of British sovereigns from the time of Brut to the time when Caesar invaded Britain (55 B. C.), and written history began. Thus the British legendary story covered more than a thousand years. It enabled the British to claim not only a very ancient and noble lineage, but also the fulfilment of the prophecy of an ever-growing power as lasting as the world.

In the seventeenth century (West says in the *nineteenth*, but he is in error), critics began to investigate the early legends of Greece, Rome, and Britain, and rejected them as wholly unworthy of credit. The legendary material was eventually excluded from the histories of these nations, tho it cost the people many a pang to part with their cherished idols of story. For a time the ancient myths were under the ban of public opinion, being regarded by austere moralists as false and sinful fabrications. In the last century arose another class of critics, who taught that legend is valuable in its own proper character *as* legend; that while it is not to be confounded with history, it has a meaning and use of its own, and is to be preserved and enjoyed for its own sake.

Prehistoric legend throws light upon the manners and customs of the people among whom it originates. It also shows us what were their views of morality, and illustrates their ideals and ambitions. It is apt to be so connected with literature and art that a knowledge of it is essential to a liberal education. Further, the personages of ancient legend have often a *representative* character. Thus Romulus represents a period of the reign of physical force; Numa, a period when the minds of men were influenced by religious thought and respect for law, etc. The story of Helen represents the cause or incident which led to the war of Troy, whatever it may have been. The war itself was the really important thing in its influence upon the world. The incidents leading up to it are not important to know, in any event. Aeneas represents certain men who, arriving from the East in prehistoric time, brought to Western Italy something of Eastern civilization. Brut represents, likewise, the very early advent of some civilized man in Britain. In reality, the earliest visitors to Britain seem to have been Phoenicians, not Trojans. But it doesn't matter.

Within the past century the ancient legends of Greece and

Rome have grown in popularity thru every decade. The British legends of essentially the same character have been neglected, tho they are more interwoven with classic literature than are the others. The time has fully come to popularize them, as illustrative of literature and art and of the genius of the early inhabitants of the British mother-land.

The British story is not historically true, of course. Neither is the Greek nor the Roman. All these stories, however, are far from being conscious falsehoods. All were believed with fullest sincerity in the olden time. They arose as myths naturally arise,—just as myths have arisen in our own country,—from a popular endeavor to account for names of places and for observed phenomena; from the variations which come to true stories thru verbal transmission, etc. Nothing could be more sincere than the old belief of the British in the stories of the giants. Down to two centuries ago, effigies of giants continued to be carried annually thru the streets of London, as they are to this day in Brittany; and when this street pageant was abolished, in 1708, the public was appeased by the placing of the huge "Gog and Magog" in the Guild Hall of London.

The British legends are more related than any other to our standard literature. The first poem of account in the English language (the first after the Norman Conquest, which caused the Anglo-Saxon to become the English), was Layamon's "Brut." Our first English tragedy, which introduced blank verse, and gave a model to Shakespeare, was Sackville's "Porrex and Ferrex." Two of Shakespeare's best plays are his "King Lear" and "Cymbeline." All of these are based on the old British legend. Spenser's "Faerie Queene" relates the entire legendary story of the thousand years before Caesar and the five hundred more before the Saxon Conquest. Drayton's "Polyalbion," drawn upon by writers of prose and verse to this day; Warner's "Albion's England," etc., of the Elizabethan age, are from the same source. Milton's Sabrina, in "Comus," Wordsworth's "Artegal and Elidure," Mason's

"Caractacus," Cowper's "Boadicea," Tennyson's "Idylls of the King," and Malory's beautiful prose tales of ancient chivalry, are likewise drawn from the old British legendary lore. Scottish folklore lends the principal interest to Shakespeare's "Macbeth."

Ireland supplies the legend of the voyage of Saint Brendan, the supposed discoverer of America in the sixth century, which has been revived by Tennyson's "Voyage of Maeldune."

The "Mother Goose" rhymes of the nursery are filled with very ancient relics of legendary days. Its "Old King Cole" was the great Coel who built the city of Colchester. Its "Jack the Giant Killer" is the embodiment of the tales of Corineus and Debon and Capritus. Great historical names are touched by the folklore which supplements ancient history. Caesar's account of his invasion should be read in connection with the legendary story of the same event. Each explains the other. Hadrian, Severus, and Constantine, of the great Roman emperors, lived in Britain. Carausius, the naval king of Britain, who defied the Romans for seven years, is portrayed in the legend beyond the brief pictures which history gives of him.

The high school education of the present day cannot afford to omit a systematic presentation of ancient British legend; and the supplementary books for pupils in lower grades should contain a representative amount of British legendary lore. For high school purposes, Spenser's "Faerie Queene" may be drawn upon. In Canto X, Book II, stanzas V to LXVII, is contained the ancient story from Brut to Uther, the father of King Arthur—the legend of fifteen centuries. This should be read in all representative high schools. There is now too little of Spenser read, and that little is apt to be selected at random, answering no purpose further than to give a slight acquaintance with the author's style and verse form. This proposed reading will answer several purposes at once, since it is naturally correlated with history, art, and literature in many forms.

The legends of Greece, Rome, and Britain should be correlated, and their nature explained in the light of modern criticism. The pupil should understand the three successive judgments which have been passed upon them—their former acceptance as historical matter, their later rejection as impostures, and their final re-acceptance in their proper character as folklore, which is valuable for its own sake, and needs only an enlightened interpretation in its *representative* character.

Spenser himself correlated the three branches of the Trojan story—the Grecian, the Roman, and the British—in a singular little episode in the "Faerie Queene." This is "The Rueful Story of Sir Paridell," which begins with stanza XXII, Canto IX, Book Three, and includes just twenty stanzas. It contains the oft-quoted couplet:

> For loyal Britons sprong from Trojans bold,
> And Troy Novant was built of old Troy's ashes cold.

In this episode, the Lady Britomart is addressed as "sir." This has been a puzzle to many readers of the poem. It certainly was without precedent for a "gentle dame" to be addressed in this fashion, but it must be remembered that Britomart was a lady knight; and the poet, knowing of no other form of address used in knighthood, felt compelled to apply it to her. In an after-dinner talk, Sir Paridell, who claims to be a descendant of the Trojan Paris, relates the cause of the Trojan War. Britomart, who is a British maid, listens to the story with great interest, and inquires what became of Aeneas. Sir Paridell, answering, now tells the Roman story of the wanderings of Aeneas, and shows that the Romans were of Trojan descent. Britomart then declares that if Rome is a second Troy, London is truly a *third* Troy, for the ancient Britons were descended from Aeneas, and their city was at first called Troy Novant. This brings back to the mind of Sir Paridell what he had long forgotten—the story of Brut (the great-grandson of Aeneas), who conducted a band of Trojan refugees from Greece to the vast island which he discovered, and which was named for him Brutain (Britain). Thus it appears that Sir Paridell and the gentle dame are of the same lineage; and he begs pardon for the Roman conquest of the island, which he declares was the result of ignorance of this relationship.

The episode is remarkable as showing the desire of Spenser completely to *correlate* the three branches of the Trojan story.

While it is desirable that the new study of old British history and its concomitant, prehistoric legend, shall mean a larger reading of Spenser,—whose "Faerie Queene" is always easily available in popular form, and offers reading which is valuable for its own sake,—this is not the whole. The study of mythology has been greatly enlarged within recent years,—a fact of which the publishers of text-books have been making note. A knowledge of the myths of Greece and Rome is not sufficient now, as it was a decade ago. The myths of Northern countries demand attention from the cultured person. He is expected to know something of the characters of the "Nibelungenlied," for instance. But especially should he have some acquaintance with that line of "shadowy kings," the "fairies of history," that come and go thru the pages of our standard literature, that appear and reappear in the various forms of art, and that reflect the life and character of our ancient British ancestors

Chicago. HUBERT M. SKINNER.

For Discussion

The thoughts of most people are so engrossed with the pots and the kettles of their material life that they fail to think of their benefactors. And so it happens that the occasionally rising feelings of gratitude to the teachers fail to find proper expression. If a day were set apart, known as Appreciation Day, such feelings might find embodiment in speech and otherwise, and thereby increase the sum of happiness that might be in the world. Why not agree upon March 15 as an appropriate day for such an occasion.

The Hebrew Woman in Bible Days

AN erroneous notion has long prevailed regarding the place assigned to the Hebrew woman at home and in society by the Mosaic law. Even now the idea obtains that the law placed the Hebrew woman almost on the same footing as the low-born slave, and denied her all mental and spiritual enjoyments; that, because polygamy was silently tolerated by the law, and because it gave fathers and husbands a certain amount of authority over their wives and daughters, the position of the Hebrew woman must therefore have been exceedingly low. But the student who closely examines the Old Testament passages relating to her domestic and social life, will soon see that this assumption is without foundation. A consideration of her life during Biblical times will, in fact, show that she enjoyed more freedom than other Oriental women of that or even of the present time, and that in some respects her position was not much inferior to that of her modern descendants.

The Old Testament gives two distinct periods in the history of the Hebrew woman. The first extends from the times when the Israelites became established in Palestine, and the second from that date to the building of the second Temble. The most prominent feature of the first period is an extreme simplicity of manners in both sexes, occasioned by their living in the open air or in tents. It resembles in many respects the heroic age of the ancient Greeks, and especially with regard to the social position of the female sex. But while in the Hebrew world the woman is known as "Ish-shah," "wife," being equal in moral as well as in literal etymology to "Ish," "man," the Greeks had separate words for *man* and *wife*, namely, *aner*, *gyns*,—suggesting, perhaps, the inferior rank of the weaker sex among them. Again, while the Greeks called their *first* woman *Pandora* as the bringer of all evil to man, the first woman of the Bible, *Eve*, is introduced to us as a part of her husband's being, and as having been created to be "a helpmeet for him" (Gen. ii. 2).

Except Eve, who seems to have lived with her family in the open air, the women belonging to that period dwelt in tents. Such a tent consisted of a walled-in enclosure covered with curtains of a dark color (Cant. i. 5). It was divided into two or more apartments, one being always reserved for the females of the family; but sometimes each female had a separate tent (Gen. xxxi. 34).

The occupations of the married women were multifarious. She rose early in the morning, and spent the day in attending to her children, distributing food at meal times, and weaving various textures for the use of her family (Prov. xxxi. 15).

The cooking was also done by the mistress of the house, and even women of rank did not consider it beneath their dignity to help in culinary work (Gen. xviii. 5). Sometimes a nurse was kept for the younger children of the family, and was held in great estimation by her employers (ibid. xxxv. 8). The surplus of their manufactures was usually sold to merchants (Prov. xxxi. 24).

The unmarried women had, besides their share of the domestic duties, the daily task of tending the flocks and of taking them to the well, where the neighboring shepherds met them and indulged in gossip and hilarity (Gen. xxix). On these occasions they moved about freely, and could even dispense with the veil usually worn out of doors by Oriental women (ibid. xii. 14). These diversions ended when they entered upon the matrimonial state, which they did between the ages of twelve and eighteen years (Buxtorf, *Synag.* vii. 143).

Sometimes courtship preceded marriage, as in the cases of Jacob and Samson; but the mediation of a third party was usual in marriage negotiations (Gen. xxiv. 4). When the parents approved of the bridegroom's proposals, the bride was sometimes asked for her consent; but when she was of a higher rank than the bridegroom, the father offered her hand to him as a mark of special favor. Thus Jethro did to Moses, Caleb to Othniel, and Saul to David. At the wedding of Rebecca and of Ruth only a blessing was pronounced by those present. At much later period an oath was added in ratification of the union (Ezek. xvi. 8). Indeed, marriage was always considered among the Hebrews as an institution proceeding from God (Gen. xxiv. 50; Judges xiv. 4); and the name given to it in post-Biblical times and retained to the present day is *Kiddushin*, i. e., "Sanctification." The Greeks and Romans, on the other hand, used terms meaning literally "Yoking together of two persons," and emphasizing essentially the civil nature of the union.

Tho polygamy was not actually forbidden by the Mosaic law, yet it appears from the phraseology employed at its first institution that monogamy was the only legitimate practice. In Gen. ii. 24 it is said "Therefore shall a man leave his father and his mother and cleave unto his wife," and not his "wives." Elkanah's *second* wife is, quaintly enough, called *Tsara* (I Sam. 1), which term in Hebrew also means "misery."

The simplicity manifested in the manners of the Hebrew women found its counterpart in their attire. This was generally of a primitive order. On festive occasions, however, apparel of a more elaborate character was used (Gen. xxiv. 53). Personal ornaments were also sometimes worn; these were mostly articles of gold, and, perhaps, even jewels, since precious stones are mentioned in the Pentateuch. While in Egypt, the Hebrew women learned the use of mirrors, which were then made of a mixture of copper and tin. These mirrors they gave freely for the fabrication of the laver of the Tabernacle (Exod. xxxviii. 8). At that time they appear also to have acquired some proficiency in singing, dancing, and playing on musical instruments; for on the shore of the Red Sea we find them singing an ode together with Miriam. Later on, they shared with the men the privilege of being summoned to hear the reading of the law (Deut. xxxi. 12).

An old Sanscrit proverb says: "Women are instructed by nature, but men obtain learning by books"; nor are illustrations wanting in the Bible to prove the truth of this saying. The Hebrew women had already cultivated a taste for flowers (Gen. xxx. 14), song, and music; they were active in their households, charitable to the poor and needy (Prov. xxxi. 20); and, above all, they were sensible of the blessing of freedom and independence.

During the second period of Biblical history, from the settlement of the Israelites in Palestine to the rebuilding of the second Temple, a remarkable change occurred in the life, habits, and social standing of the Hebrew woman. The simplicity of manners which had characterized the first period gave place in course of time to luxurious living—the result of residing in large towns and in permanent dwelling-houses, and of closer social intercourse with men of their own and foreign nations. The females of the poorer and middle classes occupied the same room or rooms with their husbands; but the wives of the rich and nobles had a separate set of apartments for themselves, called *harmon* (Amos iv. 3), most probably derived from *harem* (forbidden), and akin to the modern *Harem.*

Yet the seclusion of women among the wealthy Hebrews was at that period much less strict than with the modern Mohammedans, or the ancient Persians and Greeks. As among the Greeks (Homer, *Odyss.* i. 329-331), the Jewish females occupied the upper part of the house, as instanced in 2 Sam. vi. 16, and 2 Kings ix. 31-33, in connection with Michal and Jezebel. But, while the former were not allowed to see any one but their nearest relations (cp. Wieland, *Attisches Museum,* ii. 131), the latter moved about freely, and sometimes took an active part in public life. As instances of this may be mentioned Jephthah's daughter, Deborah, Jezebel, Athalia, Huldah, Esther, and Noahdiah. Deborah and Hannah, as composers of excellent odes, have the honor of being the first poetesses in history. Women were also hired to chant doleful songs at the funerals of persons of high rank (Jer. ix. 16). Sometimes they were even employed to plead causes at the royal courts (2 Sam. xiv. 2; I Kings i. II). Then, again, there are instances of women who, by their bravery and oratorical powers, saved a whole town from destruction (Judges ix. 53; 2 Sam. xx. 18-23).

Their recreation consisted chiefly in paying visits to their relations and friends, on which occasions refreshments were served (Cant. viii. 2), and in attending at public festivals. These were of frequent occurrence: religious celebrations, or weddings, when the women assembled in the streets to watch the gay procession of the guests (Jer. xxv. 10); vintage festivals and harvest festivals where, amidst merriment and laughter, men and women danced to the strains of sweet music (Judges xxi. 21; Isa. 10; Jer. xxxi. 3, 4). Recreation houses also existed, and were frequented by women of rank (Micah ii. 9), but their exact nature is not clearly defined.

The prophet Isaiah devotes a whole chapter to the description of the dresses and trinkets worn by the Hebrew woman of his time; and even as far back as the days of King Saul, women wore rich dresses of scarlet and gold. David, when bewailing Saul's death, says: "Ye daughters of Israel, weep over Saul, who clothed you in scarlet with other delights, who put ornaments of gold upon your dresses" (2 Sam. i. 24). This extravagance in women's attire continued to the time of Christ; and according to Edersheim (*Life and Times of Jesus*), a lady would then get to Jerusalem "from a false tooth to an Arabian veil, a Persian shawl, or an Indian dress." The Jewish women, like the Egyptian, the Greek, and the Roman, used precious ointments and perfumes for their heads and dresses (Cant. i. 3). The cost of a moderately sized bottle of those perfumes is stated to have been equal to $30 of our money. Women of rank also used cosmetics for the eye-lashes (2 Kings ix. 30; Jer. iv. 30). Isaiah, deriding this practice, says that the women of his time were "lying with their eyes" (Isa. iii. 16).

The Hebrew women must generally have been of great natural beauty, for many such are found in the Old Testament. According to Canticles, (ch. ii.), pet-names were often given to women, such as *rose of the valley*, *dove*, *Aurora*, *sister*, *sun*, and *star*.

If the character of a nation is reflected in its proverbs, the passages in the Bible relating to the worth of women prove the high estimation in which the Hebrew women were held by their husbands. They joined the latter at meals (Job i. 4), and took part in their social life—a privilege withheld from other Oriental women even at the present day.

It is, therefore, evident that the common idea as to the low position of the ancient Hebrew woman is incorrect. She enjoyed, at all events, much greater freedom than was permitted to the wives of the highly-cultured ancient Greeks. She was held in higher regard than the women that lived in the time of Luther, who in his *Table Talk* quotes, and as it seems approvingly, the old Latin proverb: *Tria mala pessima: ignis, aqua, femina.* And finally, the liberty granted by the Mosaic law to the Hebrew women was never condemned by contemporary poets or prophets, while modern writers and philosophers, such as Hartmann, Schopenhauer, and others, do not hesitate to inveigh against the privileges granted to them in modern life. In the book *Ueber die Weiber* (On Women, vol. vi. p. 549), Schopenhauer says that the low position of the Oriental women suits them better than their freedom in the West.

It is true that the Old Testament has its share of gossiping, over-curious, quarrelsome, and superstitious women, but they only form a small proportion to the large number of model women that appear in its pages. The esteem in which the Hebrew woman was held is shown thruout the Bible, as the following few quotations from it will show: "Whoso findeth a wife findeth a good thing, and obtaineth favor of the Lord" (Prov. xviii. 22). "A gracious woman retaineth honor, as the hand of the industrious increaseth wealth" (ibid. xi. 16). "A virtuous woman is a crown to her husband" (ibid. xii. 4). "House and riches are the inheritance of fathers: but a prudent wife is from God" (ibid. xix. 14).

Harrow. J. Chozner.

Children thrive best in an atmosphere of cheerfulness. And who makes the atmosphere of school? Is it not the teacher? What is done for the teachers is done for the children.

The happy heart of a teacher is an educational influence which no other factor can supply.

Teaching Power in Elementary Schools*

BELIEVING that certain of the most fundamental questions of school organization urgently call for more careful examination than they have hitherto received, a joint committee of the British Childhood and Child Study Societies (assisted by Mr. Marshall Jackman, past President of the National Union of Teachers), undertook in 1905 to collect data regarding the size of classes, the number of grades taught by single teachers, and the professional status of teachers in the elementary schools of Great Britain.

METHOD OF INVESTIGATION.

It was decided to select for investigation certain districts considered representative of the conditions that prevail in England generally. Considerable delay arose thru difficulties in obtaining permission from education authorities in some districts to send inquiries to their schools. They recognized the importance of the subject, but considered either that their teachers were already overburdened with office work and should, therefore, not be requested to furnish the required information, or that, since reorganization was impending in many schools, a report of the kind contemplated would very quickly lose its value. To the latter argument a reply will be found at the end of this report.

As soon as permission had been obtained from about twenty districts, schedules of inquiry were sent to every school in them.

The proportion of schedules returned from the various districts varied greatly; in a few cases it did not amount to more than a third or fourth of the number distributed. Still there is every reason to believe that these adequately represent the districts from which they come. From one borough we received returns from all the schools, the education office having kindly issued and collected them for us.

The schedule shows that we asked for a return of the number of pupils on the roll and the number who attended in each class

---

*Report of an investigation made in England.

BOROUGHS.

Numbers in Classes—

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
Borough H. *Number of Schools—5.*										
H. T.	No	Classes.		..	..	..	..	..	..	..
C. T.	3.8	7.6	26.8	23.0	7.6	..	..	..	..	..
U. T.	5.7	3.8	17.3	3.8	..	..	..	..	..	..
Borough I. *Number of Schools—108.*										
H. T.	.75	.75	.6	.15	.15	..	..	..	..	..
C. T.	.75	.75	4.9	11.5	23.6	14.8	3.7	.75	.3	.15
U. T.	.3	1.8	7.5	10.6	11.1	4.8	.9	.45	..	.15
Borough K. *Number of Schools—26.*										
H. T.	.6	.6	1.1	1.1	.6	..	..	..	..	..
C. T.	..	1.7	4.7	15.3	18.2	11.6	1.1	..	.6	..
U. T.	1.8	5.8	7.0	18.2	7.0	1.1	1.1	..	..	..
Borough L. ..*Number of Schools—84.*										
H. T.	.6	1.5	4.4	1.5	..	.4	..	..	..	..
C. T.	.8	3.9	15.1	29.9	12.8	3.5	..	.4	..	..
U. T.	.6	5.3	10.6	6.2	1.8	.6	..	..	.2	..
Borough M. *Number of Schools—76.*										
H. T.	.4	.7	3.9	3.7	.2	.2	..	..	..	..
C. T.	.4	3.4	9.0	20.4	14.3	8.8	3.6	.6	..	..
U. T.	1.1	2.8	6.2	9.7	7.0	1.4	.2	.2	.2	..
Borough N. *No. of Schools—13*										
H. T.	No	Classes.								
C. T.	.8	9.1	35.7	37.4	11.6	..	..	..	..	..
U. T.	..	1.6	..	4.1	.8	..	..	..	..	..
Borough O. *Number of Schools—67.*										
H. T.	.28	.8	1.1	.8	..	.28	..	..	..	..
C. T.	..	.16	7.9	17.9	24.4	20.2	2.2	.8	.28	.28
U. T.	.28	2.2	5.1	6.8	3.4	1.1	.28	.28	..	..
Borough P. *Number of Schools—70.*										
H. T.	.48	.48	1.2	.9	.48	..	.24	..	..	..
C. T.	.24	.96	7.3	14.1	10.9	3.8	1.4	.48	..	..
U. T.	.9	3.9	14.1	19.9	15.1	3.4	.24	.7	.24	..
Borough Q. *Number of Schools—13.*										
H. T.	..	..	4.2	..	1.4	..	..	..	..	..
C. T.	..	4.2	9.9	22.7	8.5	2.8	..	..	..	..
U. T.	..	5.5	12.8	14.7	7.1	55.5	..	..	..	..
Borough R. *Number of Schools—9.*										
H. T.	No	Classes.								
C. T.	..	..	40.1	35.5	15.1	6.8	..	..	..	..
U. T.	..	2.7	6.8	2.7	..	..	..	..	..	..
Borough S. *Number of Schools—4.*										
H. T.	..	4.1	4.1	..	4.1	4.1	4.1	..	..	..
C. T.	4.1	8.3	8.6	18.4	4.1	..	..	..	..	..
U. T.	8.3	8.3	12.5	8.3	..	..	..	..	..	..

on two dates in 1904, a morning in June, and an afternoon in October. We have thus been able to estimate fairly the average size of the classes for the year. For the tables appended to this report the average *of the roll* was taken, since this represents more truly than the average of attendance the task assigned to the class teacher. He is responsible for every child on his roll, and irregular attendance does not decrease, it increases the difficulties of class instruction.

THE TABLES OF STATISTICS.

To render comparison easy between corresponding districts, the schools have been classed in three divisions—Boroughs, county urban schools, and county rural schools. The size of classes is graded by tens from 20 to 100+. Teachers are classed as—(*a*) head teachers; (*b*) certificated assistants, both trained and untrained; (*c*) uncertificated assistants.

The percentages were obtained by reducing the actual number of teachers entered in each column to the standard one hundred for the column.

PUPIL TEACHERS AND MONITORS.

An explanation is required regarding the place in the tables of pupil teachers and probationers.

The schools with the best organization no longer include them as members of the staff, and as a rule they were not entered on schedules returned from these schools. For just comparison it was necessary, therefore, to reckon pupil teachers and probationers separately everywhere. According to the Code, authorities may reckon pupil teachers as counting for twenty to thirty pupils and probationers for ten pupils; thus a certain quantity of the classes numbering sixty children and upwards are in accordance with the regulations of the board of education, for pupil teachers are there helping the adult teacher. To what extent, in any district, the high figures may be thus reduced, may be estimated by comparing the percentage of large classes with the number of pupil teachers employed there. It should, however, be borne in mind that under the system of training recently

Borough T. *Number of Schools—54.*										
H. T.	.6	1.2	1.2	1.2	.6	..	..	..	..	..
C. T.	.3	1.2	8.7	16.2	25.0	21.2	4.3	..	..	..
U. T.	..	2.1	7.5	5.6	5.3	.3	.3	..	..	..
Borough U. *Number of Schools—16.*										
H. T.	1.6	4.8	8.0	1.6	3.2	..	..	..	..	..
C. T.	1.6	3.2	6.4	6.4	..	1.6	..	..	..	..
U. T.	3.2	9.6	16.1	22.5	9.6	..	..	..	..	..
District W. *Number of Schools—2.*										
H. T.	..	..	7.7	..	..	..	..	..	..	..
C. T.	..	..	..	7.7	15.4	..	..	..	..	..
U. T.	..	15.4	7.7	23.3	15.4	7.7	..	..	..	..

BOROUGHS.

PUPIL TEACHERS AND PROBATIONERS.

	Pupil Teachers.		*Probationers.*	
	Taking Class.	Assisting.	Taking Class.	Assisting.
Borough H.	0	0	0	0
" I.	20	72	3	20
" K.	12	7	0	0
" L...	4	22	0	2
" M.	3	46	0	1
" N.	0	0	0	0
" O.	16	17	0	0
" P...	5	21	0	4
" Q.	7	15	0	1
" R.	0	19	0	0
" S.	1	4	0	0
" T...	0	25	0	5
" U.	18	8	2	5
" W.	1	5	0	0

COUNTY DISTRICTS (URBAN).

(The Letters correspond to Letters in C.D. Rural).

TEACHERS. *Number of Pupils in Classes.*

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
District A. *Number of Schools—71.*										
Head Teachers ..	.74	2.6	6.6	4.8	2.2	2.6	.37	.37	..	..
Certificated Assts.	.74	1.5	3.0	2.2	1.4	2.2	1.11	.37	.37	.37
Uncertificated "	1.1	8.8	18.0	17.0	7.0	1.8	1.8	..	..	.37

Number of Pupil Teachers taking Classes	18
" " " assisting	33
Number of Probationers taking Classes	1
" " " assisting	2

introduced pupil teachers are of little practical use in the schools, as they may be employed for only half the school day, and the pressure of private studies permits them to do little work for the school after school hours. They are, therefore, rapidly disappearing from town schools as a recognized part of the staff.

CLASS ORGANIZATION.

It is evident from the percentage tables that the problems of organization are widely different in town and country districts. The town schools are usually large and are staffed by teachers with more or less adequate training; rural schools are small and the assistant teachers in them (if any) are uncertificated.

In town schools the evil of large classes is common; in rural schools classes are small but teachers have charge of several standards*; occasionally one teacher has charge not only of a complete school, but also of a group of infants. Two adult teachers are considered a competent staff for schools of forty to eighty pupils ranging in age from three to thirteen years.

It is very gratifying to find very satisfactory conditions prevail in two boroughs; those marked A and N. Only 7.6 per cent. of the teachers in A and 12.4 per cent. in N are responsible for classes of more than 50 pupils. Also the education authorities do not reckon either head teachers or pupil teachers a part of the teaching staff. It should be possible in these schools to carry on the processes of education from the lowest to the highest classes with moderate efficiency; for in determining class limits an imperative condition is the fact that, however highly qualified a teacher may be, he cannot meet the individual needs of more than a certain number of children in the prescribed number of school hours. Each child requires a share of his attention.

To allow each pupil the minimum number of moments necessary for asking and answering questions, reading aloud, reciting, etc., not more than forty pupils should be assigned to each class teacher; yet we find in one borough (I) 60.85 per cent. of the

---

*In the United States the term "grades" is used wherever in this article the word "standard" occurs

District B. *Number of Schools—17.*

Head Teachers ..	1·19	1·19	2·3	3·5	2·3	1·19	..	..	..	..
Certificated Assts.	..	1·19	..	8·2	5·89	9·49	2·38	2·3	1·19	..
Uncertificated „	2·3	3·5	17·8	20·2	9·5	1·19	1·19	..	..	1·19

Number of Pupil Teachers taking Classes 3
„ „ „ assisting 11
Number of Probationers taking Classes 3
„ „ „ assisting 8

District C. *Number of Schools—36.*

Head Teachers ..	..	1·4	4·9	3·5	2·8	4·2	·7	..	..	..
Certificated Assts.	..	1·4	3·5	7·0	12·0	14·8	2.1	..	..	..
Uncertificated „	2.1	3·5	9·9	17·0	8·5	6·4	·7	..	..	..

Number of Pupil Teachers taking Classes 1
„ „ „ assisting 9
Number of Probationers taking Classes 1
„ „ „ assisting 3

District D. *Number of Schools—14.*

Head Teachers ..	..	3·0	..	4·6	4·6	1·5	..	..	..	..
Certificated Assts.	..	..	3·0	10·7	6·0	..	6.1	..	..	..
Uncertificated „	..	3·0	9·2	27·7	13·8	4·6	..	1·5	..	..

Number of Pupil Teachers taking Classes 4
„ „ „ assisting 11
Number of Probationers taking Classes 1
„ „ „ assisting 6

District E. *Number of Schools—22.*

Head Teachers ..	..	3·8	7·6	2·8	6.6	1·9	..	..	..	..
Certificated Assts.	..	·9	4·7	5·7	4·7	·9	..	..	..	..
Uncertificated „	1·9	6.6	15·2	21·9	9·5	4·7	..	..	..	..

Number of Pupil Teachers taking Classes 11
„ „ „ assisting 9
Number of Probationers taking Classes 4
„ „ „ assisting 5

District F. *Number of Schools—22.*

Head Teachers ..	2.2	4·4	5·5	7·7	..	..	..	..	..	..
Certificated Assts.	1.1	3·3	5·5	5·5	8.8	5·5	..	..	..	..
Uncertificated „	5·5	10.0	11.1	12.2	7·7	2.2	..	1.1	..	..

Number of Pupil Teachers taking Classes 1
„ „ „ assisting 13
Number of Probationers taking Classes 0
„ „ „ assisting 4

teachers are in charge of classes numbering more than 50 children, and 26 per cent. of classes numbering 60 and upwards. Moreover, the staffing of these schools is still educationally worse than these figures show, for the largest classes are usually found in standard II, I, and in the infant schools, grades where the children are at an age when they need the greatest amount of individual attention. In infants' schools classes of 70 and 80 children appear to be common, and in a few cases the numbers rise beyond 90, even to 115.

RURAL SCHOOLS.

A table is appended to show the proportion of rural schools that are staffed by one, two, and three teachers. It will be seen that there are many schools in which there is only one teacher for all the standards. In these schools the infants from three to seven years of age are frequently placed in charge of monitresses, young girls who must at the same time concentrate their energies on private study and on passing academic examinations. Would not this feature of the problem be dealt with better by the exclusion in small rural schools of all infants under five or even six years? To give only the bare necessary instruction to children aged six to twelve years must tax the skill of two teachers. It is relevant here to note that England, probably, is the only country that admits children under six years of age to rural schools; in several countries the age of admission is seven or eight years in country schools, and six in town schools.

THE VALUE OF THE INVESTIGATION.

The schedules returned bear witness that in 1904 the schools were in a stable condition; remarkably few vacancies are reported in the staffing. (Where vacancies do occur an explanatory note has allowed the missing teacher to be supplied in the reckoning.)

In view of the fact that many authorities are now considering reorganization of the less well-equipped schools such an investigation as this has special value; since it aims at taking careful stock of existing machinery before proceeding to modify it.

COUNTY DISTRICTS (RURAL).

TEACHERS. *Number of Pupils in Classes.*

District A. *Number of Schools—93.*

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
Head Teachers ..	2.3	8.5	10.3	9.6	3.1	.77	1.1	..	..	[illegible]
Certificated Assts.	.4	2.3	4.2	3.07	.4	.8	.4	..	..	[illegible]
Uncertificated „	5.3	16.1	19.2	8.1	2.3	1.5	.4	..	..	[illegible]

Number of Pupil Teachers taking Classes	19
„ „ „ assisting	17
Number of Probationers taking Classes	2
„ „ „ assisting	1

District B. *Number of Schools—95.*

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
Head Teachers ..	..	9.5	13.8	7.9	2.7	.8	.4	..	..	..
Certificated Assts.	..	1.1	2.2	1.5	2.3	.8	..	..	..	..
Uncertificated „	9.1	16.3	16.7	5.1	6.3	2.3	.8	..	.8	..

Number of Pupil Teachers taking Classes	22
„ „ „ assisting	22
Number of Probationers taking Classes	9
„ „ „ assisting	9

District C. *Number of Schools—17.*

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
Head Teachers ..	..	4.7	6.3	8.0	1.6	4.7	1.6	..	..	..
Certificated Assts.	..	..	3.2	6.4	14.3	3.2	3.2	..	..	..
Uncertificated „	..	.8	19.0	9.5	4.7	..	1.6	..	..	..

Number of Pupil Teachers taking Classes	1
„ „ „ assisting	3
Number of Probationers taking Classes	2
„ „ „ assisting	2

District D. *Number of Schools—46.*

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
Head Teachers ..	1.0	19.2	12.1	9.1	4.0	..	1.0	..	..	..
Certificated Assts.	1.0	2.0	2.0	2.0	1.0	..	1.0	..	..	..
Uncertificated „	7.0	27.2	5.0	6.0	3.0	..	..	..	..	..

Number of Pupil Teachers taking Classes	9
„ „ „ assisting	9
Number of Probationers taking Classes	14
„ „ „ assisting	13

District E. *Number of Schools—90.*

	20 and less.	30—20	40—30	50—40	60—50	70—60	80—70	90—80	100—90	100
Head Teachers ..	5.9	9.0	11.8	8.6	2.7	.9	.45	..	..	..
Certificated Assts.	.9	2.6	3.1	5.8	2.65	..	..	..	..	..
Uncertificated „	10.5	15.0	10.5	8.6	2.7	.45	..	..	..	..

Number of Pupil Teachers taking Classes	11
„ „ „ assisting	9
Number of Probationers taking Classes	4
„ „ „ assisting	5

District F. *Number of Schools*—50.

Head Teachers ..	1.7	8.0	9.2	5.1	1.1	2.9	.5	..	..	[illegible]
Certificated Assts.	..	2.8	5.1	3.3	3.4	2.8	.5	..	..	[illegible]
Uncertificated „	3.4	13.8	19.0	9.7	4.0	.5	.5	..	..	[illegible]

Number of Pupil Teachers taking Classes	3
„ „ „ assisting	17
Number of Probationers taking Classes	0
„ „ „ assisting	4

District G. *Number of Schools*—100.

Head Teachers ..	8	29	26	21	8	5	..	1	..	..
Certificated Assts.	..	4	10	11	14	1	..	..	..	..
Uncertificated „	10	46	42	37	12	6	1	1	..	..

No. of Pupil Teachers taking Classes	17
„ „ „ assisting	6
Number of Probationers taking Classes	27
„ „ „ assisting	39

NUMBER OF SCHOOLS RETURNED WHICH EMPLOY LESS THAN FOUR TEACHERS.

BOROUGHS.

			1 Teacher.	2 Teachers.	3 Teachers.
H.	5	Schools	0	0	0
I.	108	„	0	0	0
K.	26	„	0	1	5
L.	84	„	1	0	2
M.	76	„	0	1	12
N.	13	„	0	0	0
O.	67	„	1	2	3 (temporary)
P.	70	„	0	1	5
R.	9	„	0	0	0
S.	4	„	0	0	0
T.	54	„	0	4	2
U.	16	„	1	1	2
W.	2	„	0	0	0

COUNTY RURAL DISTRICTS.

A.	93	Schools	7	41	27
B.	95	„	15	42	23
C.	17	„	0	2	7
D.	46	„	10	19	13
E.	90	„	24	25	24
F.	50	„	4	10	16

COUNTY URBAN DISTRICTS.

A.	71	Schools	0	18	15
B.	17	„	0	2	3
C.	36	„	1	2	13
D.	14	„	0	1	3
E.	22	„	4	2	4
F.	22	„	1	3	4

The data collected prove beyond a doubt where lies the chief weakness in our city schools: the congested condition of many of the lower standards and of classes in infants' schools. In rural schools it reveals the conditions for the education of infants that are, for the most part, quite inadequate.

The committee issue the report in the hope that it will assist in inducing not only education authorities, but also the people who support the schools, to determine that the problems fundamental for efficient school instruction and training—the grading and size of classes—shall be the first consideration; to this all lesser questions, such as curriculum and methods, shall be subordinated.

Minimum State Standards Needed

Frederick the Second of Prussia has been held up to scorn because he insisted that his non-commissioned officers should be appointed as school teachers. All protests were met by the explanations that they must have shelter during the inclement winter days, that teaching would keep them out of mischief, that being military drill-masters they would keep the children in order, and that the wages paid to teachers were all they were worth. Do the people of the United States appreciate the importance of the teacher's office as they should? The remuneration of the teachers tells the story.

Low wages necessarily restrict one's opportunities for self-development. The kind of people who would make the most desirable teachers are looking forward to occupations holding out the possibilities that some day they may have a comfortable home—not one mis-nomed "home" (for old ladies, incurables, etc.)—with a respectable library and a piano in it, and, if so it may be, a garden around it.

Communities that cannot afford to pay a fair living wage must be given State support sufficient to enable them to do it.

It is time that minimum standards should be fixed by every State—a standard of qualification and a standard of remuneration.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

HISTORY OF EDUCATION.

1. Show the permanent value of the contributions made to education by (1) the Athenians, (2) the Romans.

2. Show that Christ was the Great Teacher both as regards *ideals* and *methods.*

3. Contrast feudal education with monastic education in the Middle Ages.

4. State briefly the pedagogic principles of Erasmus.

5. Point out what was *new* in the teaching advocated by Rabelais.

6. Explain the work of the Port Royalists as to (1) classes reached, (2) methods used, (3) subjects taught.

7. Give the essentials of the course of study in Comenius's *Great Didactic.*

8. Name three European educators (not mentioned in any of the preceding questions), who were famous for their methods, and give a characteristic of the method of each.

9. Write briefly on the educational service of each of two of the following: Edward A. Sheldon, W. T. Harris, Francis W. Parker.

10. Name the title and the author of each of three important books on education (not school text-books), written since 1800. Give a synopsis of one of these books.

ANSWERS.

1. Consciousness of individual freedom as well as physical, mental, and esthetic development and a resulting organized system of education which was later introduced at Rome and furnished a basis of the Roman system. (2) The value of organization, construction, and efficient administration.

2. He taught the Fatherhood of God and the brotherhood of man. He employed purely objective methods.

3. The feudal education was a preparation for the physical activities in this life, while the monastic education prepared for spiritual perfection in the life hereafter

4. Erasmus believed that the mother was the natural teacher of the child in its early years, that the child should have little to do but play until the seventh year, when earnest work must begin, that Latin and Greek should be begun early, that grammar should be the first subject taken, and that the religious side of the child's education should not be neglected.

5. He brought the child in contact with the things themselves instead of words about them.

6. (1) They prepared for the Church; (2) they used more modern methods than the Jesuits, omitting much of the memoriter work of the latter. They laid stress on the use of objects and the development of the sense perceptions. (3) They gave preference to the modern languages, and sought to develop the judgment and reasoning

7. The scheme of instruction is as follows: From birth to six years of age, instruction by the mother; from six to twelve, the vernacular, or national school; from twelve to eighteen, the *gymnasium* or Latin school; from eighteen to twenty-four, the university, including travel.

8. Comenius worked for a gradual development of all the faculties of the child (spiral method). The Jesuits believed in the training of the memory, and in careful drill. Froebel developed the self-activities of the child.

9. Edward Austen Sheldon (1823–1897) graduated from Hamilton College. Three years after his graduation he began teaching in Oswego, N. Y. Later he became superintendent of schools in Syracuse. He returned to Oswego, and in 1859 introduced object-lessons into the Oswego schools. He became principal of the Oswego Normal School when it was organized in 1869. He is noted as a teacher and for his successful efforts to make object-teaching a recognized method.

William T. Harris (1835–) is one of the most eminent of the American educators of the present time. He was educated at Yale. After leaving college he began teaching in St. Louis, in 1858, and later became superintendent of the St. Louis schools. He was appointed United States Commissioner of Education in 1889, and has held the position till recently. His reports are valuable contributions to pedagogical literature.

10. Spencer's *Education;* Froebel's *Education of Man;* Herbart's *A B C of Observation.*

PHYSIOLOGY AND HYGIENE.

1. Define cutis, synovia, gland.

2. Describe and give the location of (1) tarsal bones, (2) scapula, (3) ulna.

3. Compare the arteries with the veins in regard to (1) structure, (2) function.

4. What are the villi and what purpose do they serve?

5. Discuss hot and cold baths as to (1) proper time, (2) frequency, (3) value.

6. Describe spinal nerves as to origin and function. How many pairs of spinal nerves are there?

7. Where is the Eustachian tube located? What is its function? Why does "cold in the head" frequently affect hearing?

8. Distingush between ligaments and tendons, stating the function of each.

9. Mention three stages of the effect of alcohol on the brain.
10. State two reasons why the use of cigarettes is specially harmful.

ANSWERS.

1. The *cutis* is the true skin. It is beneath the cuticle and is furnished with nerves and blood vessels. *Synovia* is the fluid that lubricates the movable joints. *Gland* is an organ consisting of follicles and ducts with numerous blood-vessels interwoven.

2. (1) The *tarsal bones*, consisting of seven rounded bones, form the instep. (2) The *scapula*, or shoulder blade, is the flat bone upon the back, behind the shoulder. (3) The *ulna* is the longer and larger bone of the forearm, on the same side as the little finger.

3. (1) The walls of arteries are thicker, more muscular, and more elastic than those of veins. The function of arteries is to carry blood from the heart to the capillaries, while that of the veins is to carry blood from the capillaries to the heart.

4. Villi are minute conical projections upon the inner surface of the intestines. They take up the peptone and glucose in the chyle and pass it to the blood in the capillaries within themselves, and they also take up emulsified fat and pass it on to the lacteals.

5. (1) A hot bath should be taken at night, as a rule. A cold bath is best taken on rising in the morning. (2) A hot bath may be taken once or twice a week, while a cold bath may be taken daily. (3) A hot bath is enervating and has a sedative influence upon the nervous system. It is refreshing after severe physical or mental exertion. A cold bath is less cleansing, but serves as a tonic and stimulant to the system.

6. Each spinal nerve arises from the spinal cord by two roots, the motor root and the sensory root. The motor roots become motor nerves, which send branches to the muscles and control their movements. The sensory roots become sensory nerves, which send branches to the surface of the body and transmit sensations to the brain.

7. It is a tube running from the pharynx to the middle ear. Its function is to equalize the air pressure on each side of the ear drum. The Eustachian tube becomes closed, and it results that the air pressure on the ear drum is unequal.

8. Ligaments are strong fibrous bands of connective tissue that bind bones together at the joints. Tendons are strong, white, inelastic cords by which muscles are attached to bones.

9. The stage of (1) excitement, (2) muscular weakness, (3) mental weakness, (4) unconsciousness.

10. They are usually inhaled and used to excess.

GEOGRAPHY.

1. Give three proofs of the spheric form of the earth. How does the general form of the earth vary from a sphere?

2. What causes winds? Explain the occurrence of land and sea breezes.

3. Name and locate five leading manufacturing cities of the United States and account geographically for some part of their prosperity.

4. Locate the Netherlands. Describe the peculiar manner of draining land for agricultural purposes in the Netherlands.

5. Name three important exports from France to America. Name and locate three important seaports of France.

6. What product of the Hawaiian Islands is almost wholly consumed in the United States? From what port is it sent and at what port is it received?

7. What countries are comprised in the Scandanavian Peninsula, and what mountains separate these countries? What countries are comprised in the Iberian Peninsula? What mountains are on the northern border of this peninsula?

8. Mention three leading products of Canada and give the location where each is most extensively produced.

9. Name and locate the three largest seaports of India.

10. Mention five names of towns, rivers, or lakes in this State that come from the language of the original inhabitants; three that come from the Dutch settlers; two that come from the French.

ANSWERS.

1. (*a*) The topmasts of an approaching ship at sea are first seen; (*b*) the shadow which the earth casts on the moon during a lunar eclipse is always circular; (*c*) the earth has been circumnavigated.

2. The earth is an oblate spheroid. Winds are due to different densities in the atmosphere caused by differences of temperature. In general they are caused by the unequal heating of different portions of the earth's surface. The heated air rises and connection currents are set up from the colder regions.

During the day the land becomes warmer than the sea, the heated air rises over the land, and a breeze, called a sea breeze, sets in from the sea. During the night the land radiates the heat more rapidly than the sea; the ascending currents of heated air then rise from the sea and a land breeze sets in from the land.

3. New York City, excellent transportation facilities; Pittsburg, proximity to coal and iron; Cleveland, proximity to coal and oil fields of Pennsylvania and Ohio and to the mines of the Superior region; Grand Rapids, proximity to the lumber regions; Minneapolis, water power and proximity to the wheat region.

4. Northeast of Belgium. The land, which is partly below sea-level, is protected from inundation by dykes. The water accumulating behind these dykes is carried by canals to points where it is pumped into the sea by windmills.

5. Wines, silks, woolens. Havre, at the mouth of the Seine; Marseilles, in the southeast on the Mediterranean; Bordeaux, in the western part on the Garonne River.

6. Sugar. Honolulu. San Francisco.

7. Norway and Sweden. Spain and Portugal. Pyrenees.

8. Lumber and dairy products from Ontario, wheat from Manitoba, fish from Nova Scotia.

9. Calcutta, in the southeast, on a branch of the Ganges; Bombay in the west, on the Arabian Sea; Madras in the south, on the Bay of Bengal.

10. Cattaraugus, Ontario County, Mohawk River, Seneca Lake, Oneida. Yonkers, Amsterdam, Catskill Mountains. St. Lawrence County, Lake Champlain.

CURRENT TOPICS.

1. Mention three important "thirty day" bills that were signed by Governor Higgins.

2. Give the essential provisions of the Railroad Rate Bill. What is the purpose of this bill?

3. What measures are proposed for the preservation of Niagara Falls and why are such measures necessary?

4. In regard to the San Francisco earthquake state approximately (1) the financial loss, (2) the extent of territory affected, (3) the population affected.

5. Give an account of the measures taken for the relief of the people of San Francisco.

6. Describe briefly the recent eruption of Mount Vesuvius.

7. State where the Pan-American Congress met in June last. Name two delegates from the United States to this Congress and mention two topics of discussion.

8. Give the names of four of the following: (1) the State Superintendent of Insurance, (2) the United States Minister to Austria, (3) the Regent of the University of the State of New York last elected, (4) the Mayor of San Francisco, (5) the officer in command of the United States troops in San Francisco at the time of the earthquake.

Or, write brief biographic notes on three of the following: Carl Schurz, Pierre Curie, Henrik Ibsen, Michael Davitt, Arthur Pue Gorman.

9. Mention three important demands made by the Russian Duma in its address to the Czar and tell how they were treated.

10. Mention three important events of general interest (not included in any of the above questions) that have occurred since May 1.

ANSWERS

1. Mortgage recording tax bill; appropriation for site and plans of new education building; bill to abolish direct taxation for State purposes.

2. It gives the Interstate Commerce Commissioners the power to fix maximum rates to continue two years unless set aside by the courts.

It was passed to prevent unjust discrimination in shipping rates by the Interstate common carriers.

3. The Secretary of War is authorized by Congress to regulate the amount of water that may be taken from the Niagara River for developing power. The existence, or at least the beauty of the Falls, is threatened by the great diversion of its water for power purposes.

4. (1) Property to the amount of about $700,000,000, (2) San Francisco and neighboring towns, (3) the city of San Francisco was nearly destroyed by the earthquake and the fire that followed it; many of the nearby towns were much damaged.

5. Congress appropriated $2,500,000. The States and private individuals also gave money to aid the afflicted people.

6. Vesuvius became very active recently and caused a great amount of molten lava to flow down its sides and over the hamlets and cultivated fields at its base.

7. Rio Janeiro; Buchanan of Pennsylvania, and James of Illinois. Topics discussed: The collection of private debts from American countries by foreign nations by the use of force, and the Monroe Doctrine.

8. (1) Otto Kelsey, (2) Chas. S. Francis, (3) Dr. Albert Vander Veer, (4) Eugene C. Schmitz, (5) General Fred Funston.

Carl Schurz, who was a general in the Civil War, died May 14. He was also noted as a Statesman and journalist.

Pierre Curie, who discovered radium, was killed recently by an automobile.

Henrik Ibsen, who died May 23, was a poet and dramatist. Michael Davitt, the noted Irish home-ruler, died May 30. Arthur Pue Gorman, United States Senator from Maryland, died June 4.

9. (1) That all taxes be raised by the Duma, (2) that the Ministry should be dependent upon the support of the Duma, (3) that all political prisoners should be released. The Duma was dissolved by the Czar, July 22.

10. Answers will differ.

ARITHMETIC.

1. In 1900 a certain county had seven incorporated villages, with a total number of inhabitants of 10,691. The census of 1905 showed an increase in five villages of 165, 31, 986, 150, and 146, respectively; and a decrease in two villages of 88 and 1 respectively, while one village of 309 inhabitants had been incorporated between 1900 and 1905. Find the total village population of the county in 1905.

2. Write the following in words and perform the indicated operations: 1 ÷ .0005; ⅔ ÷ .33⅓; 8.4 ÷ ¼; .028 ÷ 28,000.

2. If 1⅓ bushels of seed are required to sow an acre, how many quarts will it take to sow a lawn 100 feet by 80 feet?

4. At $25 per M, what is the cost of 12 scantling 2″×4″ and 16′ ong?

5. Furs were marked at an advance of 20% on the cost but were sold out of season for $50, which was a loss of 20%; find the market price.

6. Find the exact interest at 4½% on $1,000 from December 2, 1905 to June 28, 1906.

7. How many acres in a rectangular field 96 rds. by 72 rds.? What is the distance from one corner of such a field to the opposite corner?

8. What should I pay for 4% stock in order to realize 5% on my investment?

9. Write a ninety day promisory note on which $500 can be realized at a bank, when discounted on the day of its date at 5%.

10. Select from the numbers one to thirty inclusive (1) all the prime numbers, (2) all the perfect squares, (3) all the perfect cubes.

ANSWERS.

1. 12,389.

2. One divided by five ten-thousandths, 2,000; two-thirds divided by thirty-three and one-third hundredths, 2; eight and four-tenths divided by one-fourth, 33.6; twenty-eight thousandths divided by twenty-eight thousand, .000001.

3. 8.815 qt.

4. (2×4×16×12×$25) + (12×1,000) = $3.20.

5. $50 + .80 = $62.50 cost.
$62.50×1.20 = $75, marked price.

6. $\frac{208}{365}$ of $45 = $25.64.

7. 96×72 = 6,912 sq. rd., 6,912 sq. rd. + 160 = 43⅕ A.; $(96)^2+(72)^2 = 14,400, \sqrt{14,400} = 120$, or 120 rd., diagonal distance.

8. .04 + .05 = .80; $100×.80 = $80.

9. $506.33.

ALBANY, N. Y., AUGUST 9, 1906.

Ninety days after date I promise to pay John Doe, or order, Five hundred and six $\frac{33}{100}$ Dollars, for value received with interest.

JOHN SMITH.

10. (1) 1, 2, 3, 5, 7, 11, 13, 17, 19, 23, 29; (2) 1, 4, 9, 16, 25; (3) 1, 8, 27

AMERICAN HISTORY

1. Mention (1) two conquests of the Spaniards in the New World that added materially to the wealth of Spain, (2) two attempts at conquest that ended in failure.

2. Give an account of the first attempts at English colonization made in the New World.

3. With what three foes did the New England colonists have to contend? What measure did they adopt to provide for united action against these foes?

4. Trace two natural interior highways of communication between the English colonies and the French in Canada.

5. By what body were the colonies governed during the Revolution? How were they governed from 1781 to 1789? Mention two defects in the government of the latter period.

6. Write on one of the following: (1) the Boston Port Bill, (2) the First Continental Congress.

7. What territory did the United States acquire as the result of the Mexican War? What was the object of the Wilmot Proviso?

8. Write on one of the following: (1) the Electoral Commission, (2) the Presidential Succession Act.

9. Mention three ways in which the Erie Canal contributed to the growth and development of the country.

10. Give the names of three slave-holding States that did not join the Southern Confederacy. What new State was carved from one of the seceding States?

ANSWERS.

1. (1) Mexico, Peru; (2) Florida.

2. Sir Walter Raleigh made several unsuccessful attempts, 1579–87; the South Virginia Company made a permanent settlement at Jamestown, Va., 1607; the Pilgrims founded a colony at Plymouth, 1620; Calvert founded a colony in Maryland, 1632.

3. Indian, Dutch, French. The New England Confederation was formed.

4. The Lake Champlain valley and the valleys of the Mohawk and Oswego Rivers.

5. The Second Continental Congress. Congress, under the Articles of Confederation. No executive department and no power to raise money except thru the States.

6. (1) The Boston Port Bill was passed by the English Parliament in 1774, to punish the people of Boston for their strong opposition and violent measures against the tax on tea. The seat of Government was removed to Salem and the port of Boston was closed to all commerce. (2) The First Continental Congress met at Philadelphia in autumn of 1774, to protest against the Boston Port Bill and other grievances. They embodied their protests in a "Declaration of Colonial Rights," which they adopted.

7. California, Arizona, Utah, and New Mexico. To prohibit slavery in all territory which might be ceded to the United States by Mexico.

8. This was a commission appointed by Congress in 1876 to decide whether Hayes or Tilden was elected Presient.

This Act was passed in 1886 for the purpose of determining the order in which the members of the Cabinet should succeed to Presidency in case of the death or removal of both the President and the Vice-president.

9. Provided cheap transportation to the seaboard, and thus increased the value of farm products; caused cities and villages to be built on its banks; made New York City the chief city of America.

10. Maryland, Missouri, Kentucky, West Virginia.

CIVICS.

1. Give the titles of two town officers and three county officers. Describe the process of nominating county officials.

2. Give, with reference to this State, the number of (1) Congressional districts, (2) Assembly districts, (3) Senatorial districts.

3. Name the legislative body and the chief executive officer of (1) a city, (2) a county.

4. Mention in the order of succession the three officials that may act in the place of the Governor when he is unable to perform his duties.

5. Mention three State officials appointed by the Governor; give the term of office and one duty of each.

6. Mention four purposes of the Constitution of the United States as set forth in its preamble.

7. When, and for what purposes were the last three amendments to the Constitution of the United States adopted?

8. State three general purposes for which Congress may raise revenue.

9. State two things that the Constitution of the United States guarantees to every State.

10. What is an extradition treaty?

ANSWERS.

1. Supervisor, town clerk, county judge, sheriff, county clerk. Delegates elected at the primary meetings, meet in county convention, and nominate county officials.

2. 37; 150; 50.

3. (1) Common council, Mayor; (2) board of supervisors, sheriff.

4. Lieutenant-governor, President *pro tempore* of the Senate, speaker of the Assembly.

5. Superintendent of banking, three years; has general supervision of the banks of the State and reports their condition annually to the Legislature. Superintendent of insurance, three years; has general supervision of all insurance companies transacting business in the State. Railroad commissioner, five years; has general supervision of railroads of the State, investigate the causes of railroad accidents, etc.

6. To form a more perfect Union, establish justice, insure domestic tranquility, etc.

7. No. XIII, 1865, abolishes slavery; No. XIV, 1868, gives the negro citizenship; No. XX, 1870, gives the negro the right of suffrage.

8. To pay the debts and provide for the common defense and general welfare of the United States.

9. A Republican form of government; protection against invasion, etc.

10. It is a treaty between two countries by which a person who commits a crime in one country and escapes to another, may, on demand to the officers of the former country, be given up to them to be tried in the place where the crime was committed.

READING.

1. Name a familiar selection that should be read in (1) fast time, (2) slow time. In each case give the reason for the time chosen.

2. Mark for inflection the following: (1) Does he speak French or German? He speaks French. (2) Does he speak French or German? No.

3. What class of selections are adapted to (1) the high key, (2) the low key?

4. State the effect of each of the following on a pupil's reading: (1) corrections or criticisms made during the reading, (2) the attention of those to whom he is reading.

5. Mark for rhetorical pauses the following:

"Curs'd be thou; since against his thy will
Chose freely what it now so justly rues."—*Milton.*

6. Show the meaning of the following statement and explain the truth therein contained: "Except when there are serious structural defects [of the vocal organs], the imagination and soul will make a voice."

7. What *kind* of stress is used in the following selection? Copy the selection and underscore the words to show different *degrees* of stress: "I will buy with you, sell with you, talk with you, walk with you, and so following; but I will not eat with you, drink with you, nor pray with you."—*Shakespeare.*

8-9. Show the grade to which each of five of the following is adapted for supplementary reading and the particular purpose that each serves: Grimm's "Fairy Tales," Arnold's "Sohrab and Rustum," Alcott's "Little Women," Pyle's "Story of King Arthur and His Knights," Ruskin's "King of the Golden River," Stevenson's "The Wind," Eggleston's "Stories of Great Americans."

10. Use correctly in words the following: â, ẹ, ĭ, ô, e.

ANSWERS.

1. (1) Tennyson's "Brook." The time is fast to express quick motion, bright thought, and much repetition. (2) Lincoln's "Gettys-

burg Address." This should have slow time to express serious thought and to enable one to grasp the complete thought.

2. (1) Does he speak French′ or German‵? He speaks French.‵ (2) Does he speak French′ or German‵? No‵.

3. Those expressing joy, animation, frivolity, scolding, and sometimes anger. (2) Those conveying an idea of sadness, grandeur, reverence, and usually hatred.

4. (1) It confuses the pupil and breaks the continuity of thought. (2) An attentive audience inspires him to give proper emphasis, articulation, and expression, that they may understand what he reads.

5. Make a pause after (1) *thou*, (2) *his*, (3) *freely*, (4) *justly*.

6. The pauses, accent, and inflection required to make reading expressive are inspired by the imagination and the mind. Good reading is the natural outcome of an intelligent, sensitive mind.

7. Final stress: "I will *buy* with you, *sell* with you, *talk* with you, *walk* with you, and so following; but I will not *eat* with you, *drink* with you, nor *pray* with you."

8-9. Grimm's "Fairy Tales," third and fourth grades, cultivate the imagination; Arnold's "Sohrab and Rustum," seventh grade, valuable for its literary style and historical worth; Alcott's "Little Women," sixth grade, its moral teaching; Ruskin's "King of the Golden River," fifth grade, to study style and cultivate the imagination; Stevenson's "The Wind," sixth grade, instils high ideals; Eggleston's "Stories of Great Americans," seventh grade, introduction to American history thru biography.

10. Ask, prey, police, orb, can.

PHYSICS.

1. Give the laws in accordance with which strings vibrate.

2. Define volt, ampere, gravitation, inertia.

3. Give two laws in accordance with which light is refracted.

4. Under the influence of gravity alone, how far will a body fall in six seconds? What is the velocity of the body at the end of the fifth second?

5. Find the volume of a block of stone that weighs five pounds in water.

6. Define machine. State the law of mechanics expressing the relations of power and weight and the distances thru which they move.

7 Mention and explain two different uses of the pendulum.

8 Explain the transmission of heat by (1) conduction, (2) convection. Illustrate each.

9. State the relation between the velocity of sound and the elasticity and the density of the medium. Compare solids, liquids, and gases as mediums for the transmission of sound.

10. Describe the construction and the action of the incandescent light.

ANSWERS.

1. Other conditions being the same, the number of vibrations per second varies (1) inversely as the lengths, (2) directly as the square roots of the tensions, (3) inversely as the diameters, (4) and inversely as the square roots of the densities.

2. The *volt* is the unit of electro-motive force; the *ampere* is the unit of rate of flow, or current strength. *Gravitation* is the attractive force that every particle of matter in the universe has for every other particle. *Inertia* is the tendency of a body to retain its condition of rest or motion.

3. (1) The incident and refracted ray is in a plane that is perpendicular to the refractory surface. (2) When a ray of light passes obliquely from a less refractive to a more refractive medium, it is bent at the point of incidence towards a perpendicular to the surface, separating the two media. When the ray passes from a more refractive to a less refractive medium, it is bent from the perpendicular.

4. $S—\frac{1}{2} g t^2—578.88$ ft.; $V—g t—160.8$ ft.

5. A body immersed in a liquid loses as much in weight as the weight of the liquid displaced by it; it is also evident that it displaces exactly its own volume of the liquid. Since one pound of water has a volume of 62½ cubic inches, four pounds will have a volume of 225 cubic inches.

6. A machine is an instrument for the conversion of motion or the transference of energy. The power, multiplied by the distance thru which it moves, equals the weight multiplied by the distance thru which it moves.

7. The pendulum is used to keep time since its vibrations are isochronous. It is also used to measure latitude, in accordance with the law that the period of oscillation, varies inversely as the square root of the acceleration due to gravity.

8. *Conduction* is the process by which heat is transferred from molecule to molecule along the body. Ex. Heating a poker by placing one end in the fire. *Convection* is the process of heating by circulation, *i.e.*, by convection currents of a liquid or gas carrying the heat to objects at a distance from the source of heat. Ex. Heating a room by convection currents of air which rise from the heated stove.

9. The velocity of sound varies directly as the square root of the elasticity, and inversely as the square root of the density. Solids transmit sounds better than liquids, and liquids better than gases.

10. The incandescent lamp consists of a glass bulb in whose base are sealed two platinum wires joined within the lamp by a loop of carbon filament. The air is exhausted from the bulb before it is sealed. The resistance of the carbon filament causes it to become incandescent, and give off a light, when the proper electric current is sent thru it.

NOW READY

The Latest Book on Teaching Composition

COMPOSITION in the ELEMENTARY SCHOOL

By JOSEPH S. TAYLOR, Pd. D.,
District Superintendent of Schools in
the City of New York.

THIS new book presents the science and art of composition in the elementary school. It is an attempt to analyze composition as a mental process and as a form of art, in order, by such analysis, to relate the subject to other modes of expression, and to find the data necessary for the formulation of principles which govern the aim and method of teaching the art to children.

There are chapters on the "psychology of composition," the "aim of composition," "method in composition," "forms of composition," the "correction of compositions," etc. There is also a complete plan or order of exercises comprising work for an entire eight-year course; and a corresponding chapter of children's compositions, illustrating the various exercises called for by the plan. There is a fine collection of exercises for dictation, classified by grades. In short, while the book contains a thorough discussion of the theory of composition it is at the same time the most complete practical manual for the teacher ever published.

12mo. Cloth, $1.00

A. S. Barnes & Company :: New York

"The Greatest of Its Kind Ever Published"

THE NEW KNOWLEDGE

By ROBERT KENNEDY DUNCAN

Skibo Castle, Dornoch
Sutherland, July 8, 1906.

My dear Professor Duncan:

Permit me to tender my personal thanks for your valuable, most valuable, book. * * I read it thru at two sittings—a notable clergyman to whom I sent a copy writes me he read it almost thru at one. One is spell bound by the mysterious discoveries of mysterious things even in the matter which seem less to fulfil Tyndal's famous predictions that the potency of all things would be found in matter, but then he didn't know as you do that it is matter with a soul in it—motion—life—wonderful.

I read in the Athenaeum, I think, that your book was the greatest of its kind ever publisht. The Spectator was scarcely less eulogistic.

* * * * * *

I cherish the hope of making the acquaintance of one whose name is soon to be known among the foremost teachers of man.

Gratefully yours,
(signed) ANDREW CARNEGIE.

PRICE, $2.00 BY MAIL, $2.16

A. S. BARNES & COMPANY, 11-15 EAST 24th STREET NEW YORK

Educational Foundations

JANUARY
1907

VOL. XVIII
NO. 5

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY

ELIZABETH, N. J.
Entered as Second Class Matter at the Post Office at Elizabeth, N. J.
NEW YORK CITY

Copyright, 1907, by A. S. Barnes & Company, New York

In the older books the rule and the definition almost always were given at the beginning of all new topics. They rested on authority wholly. The reasoning power of the children was ignored and memory was the sole reliance, excepting in the application of the principle to the solution of problems, and even here the reasoning was only partial, the application to stated conditions of an uncomprehended rule or formula of procedure.

To relieve this condition, Warren Colburn put forth his famous "Mental Arithmetic," which, with its imitators and successors, accomplished great good, notwithstanding its excessive formalism.

Illustrations of the inductive approach have already been given under "carrying" and "borrowing."

Denominate numbers should always be taught at first with the measure in hand.

Fractions always present serious difficulties to children, which may easily be avoided by employing the inductive instead of the authoritative methods, while at the same time the pupils are being trained to think.

If the three basal ideas of fractions are comprehended early by the pupils, all the later operations are comparatively easy, and the work becomes training in thinking instead of the mere following of rules. I refer to the facts (1) that every fraction is an aliquot part of an indicated unit, either integral or itself fractional; (2) that every fraction is a statement of a ratio, the quotient of one number divided by another, and (3) that for purposes of calculation each fraction is itself a unit, or a stated number of units according to its use.

Some will doubtless say, "Of course, we always teach these things." Possibly, but the arithmetic books do not, in such a way, at least, that the children grasp them, for to state them as they are stated here is not to teach them.

On the contrary, to the ordinary child in school, fractions are a mystery not to be comprehended, and the only path thru them is that of blind obedience to rule.

The first of the principles is more commonly well taught than the others. Thru handling objects, counting by 2's, 3's, etc., wholing and parting, dividing groups into smaller groups called halves, thirds, fourths, and the like, children in a modern primary school unconsciously acquire the notion that an aliquot part of any unit is a fraction.

Still the fixed unit absurdity is impressed when the book is reached, and $\frac{1}{2}$ becomes the mysterious symbol of the unknowable. This is partly encouraged by such falsities as "compound fractions," in which $\frac{1}{2}$ of $\frac{1}{2}$, the simplest statement of relation, as simple as $\frac{1}{2}$ of 4, or $\frac{1}{3}$ of 6 inches, is misstated in its very name "compound." The remedy is of course to drop such misleading terms and return to the fact of relation, if necessary using concrete objects, as slicing an apple into fractions of fractions. But whatever the means, the pupils should always be forced to keep in view the fact that a fraction is an aliquot part of the indicated unit, which may be any number, fractional or integral, and not merely *one*.

The fact that a short method of finding $\frac{1}{2}$ of $\frac{2}{3}$ is to multiply numerators and denominators should not be allowed to blind the children to the fact that the "compound fraction" is a mere statement, *one-half of two-thirds* which is one-third. They should *think* the relation.

The second principle is that a fraction is a statement of ratio. That is, $\frac{2}{3}$ means not only two of the three parts into which 1 is divided—$\frac{2}{3}$ of a fixed unit—but one of the three parts into which 2 is divided—$\frac{1}{3}$ of the unit 2. It is $\frac{1}{3}$ of 2, 2 divided by 3.

This can be made clear by much wholing and parting; first, of groups of objects, or of exactly measured dimensions, as inches, then of abstract numbers. It may be best to begin with easily divisible wholes, as 4's or 6's.

Then further practice will develop the truth that the ratios of numbers are not affected by the introduction of equal factors into both or by their removal from both, as, $4\div2=2$; $4\times3\div2\times3=2$; $12\div6=2$; $(12\div3)\div(6\div3)=2$. Arranged in fractional form, $\frac{4}{2}=\frac{4\times3}{2\times3}=2$; $\frac{12}{6}=\frac{12\div3}{6\div3}=2$.

Contents for January, 1907

Arithmetic: Methods of Instruction. III. C. B. Gilbert - - - - - - - - 321

Apperception and Its Relation to Other Mental Processes. Joseph S. Taylor - - - - 330

Spontaneous Attention. II. Th. Ribot - - 341

Autobiography of a Teacher. V. C. Hanford Henderson - - - - - - - - 348

The Early School Teaching of the Jews. Philip Magnus - - - - - - - - 363

The College Man as Leader in the World's Work. R. H. Thurston - - - - - - 380

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to June inclusive, at $1.25 a year, and is sent to its subscribers regularly until ordered to be discontinued and arrears paid for in full. We also publish The School Journal, weekly, $2.50 a year; Teachers Magazine, monthly, $1.00 a year; and Our Times, weekly, $1.25 a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly [illegible] Standard Teachers' Books and Aids, also Recitation and Dialog books, Blackboard Stencils, Teachers' Aids, etc.

All requests for catalogs, orders for books, etc., should be sent to

A. S. BARNES & COMPANY

EDUCATIONAL DEPARTMENT

11-15 East 24th Street NEW YORK

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII JANUARY, 1907 No. 5

Arithmetic

Methods of Instruction

In mathematics the child finds for the first time certainty. Indeed for the adult, mathematical fact is almost the only certainty, and mathematical reasoning is quite the only reasoning without an "if." Its scope is comparatively narrow, it is true, but its lines never vary.

Obviously the chief errors in thinking are in the major premise, the generalization. Indeed, few people make generalizations that are more than mere guesses or assertions of feeling. Statements of race characteristics as, Englishmen are beefy, Germans are dull, Frenchmen are fickle, and the rest are simple guesswork generalizations from a single instance, or at most a few. "Just like a woman," "Bankers are thieves," "Never trust a church member," are common instances of generalizations based upon prejudice and illustrate the inability of men to generalize, even enough to meet the ordinary requirements of life.

Errors in the minor premise are also common and serious. The most dreadful and deadly illustration is conviction and execution upon circumstantial evidence. So long as men are still hanged on the testimony of handwriting experts, it cannot be said that we are reasoning beings, at least sufficiently to discern between probability and certainty.

The school has no higher office toward the intellects of pupils than to teach them to "reason justly." How may arithmetic aid in this work? Mainly thru two agencies: (1) the inductive method of approaching all new subjects, leading pupils to make their own generalizations in the forms of definitions and rules of procedure; and (2) the application of principles taught to the solution of vital problems, especially in the higher grades, thru the use of the equation and the literal symbol of the unknown quantity.

In the older books the rule and the definition almost always were given at the beginning of all new topics. They rested on authority wholly. The reasoning power of the children was ignored and memory was the sole reliance, excepting in the application of the principle to the solution of problems, and even here the reasoning was only partial, the application to stated conditions of an uncomprehended rule or formula of procedure.

To relieve this condition, Warren Colburn put forth his famous "Mental Arithmetic," which, with its imitators and successors, accomplished great good, notwithstanding its excessive formalism.

Illustrations of the inductive approach have already been given under "carrying" and "borrowing."

Denominate numbers should always be taught at first with the measure in hand.

Fractions always present serious difficulties to children, which may easily be avoided by employing the inductive instead of the authoritative methods, while at the same time the pupils are being trained to think.

If the three basal ideas of fractions are comprehended early by the pupils, all the later operations are comparatively easy, and the work becomes training in thinking instead of the mere following of rules. I refer to the facts (1) that every fraction is an aliquot part of an indicated unit, either integral or itself fractional; (2) that every fraction is a statement of a ratio, the quotient of one number divided by another, and (3) that for purposes of calculation each fraction is itself a unit, or a stated number of units according to its use.

Some will doubtless say, "Of course, we always teach these things." Possibly, but the arithmetic books do not, in such a way, at least, that the children grasp them, for to state them as they are stated here is not to teach them.

On the contrary, to the ordinary child in school, fractions are a mystery not to be comprehended, and the only path thru them is that of blind obedience to rule.

The first of the principles is more commonly well taught than the others. Thru handling objects, counting by 2's, 3's, etc., wholing and parting, dividing groups into smaller groups called halves, thirds, fourths, and the like, children in a modern primary school unconsciously acquire the notion that an aliquot part of any unit is a fraction.

Still the fixed unit absurdity is impressed when the book is reached, and ½ becomes the mysterious symbol of the unknowable. This is partly encouraged by such falsities as "compound fractions," in which ½ of ½, the simplest statement of relation, as simple as ½ of 4, or ⅓ of 6 inches, is misstated in its very name "compound." The remedy is of course to drop such misleading terms and return to the fact of relation, if necessary using concrete objects, as slicing an apple into fractions of fractions. But whatever the means, the pupils should always be forced to keep in view the fact that a fraction is an aliquot part of the indicated unit, which may be any number, fractional or integral, and not merely *one*.

The fact that a short method of finding ½ of ⅔ is to multiply numerators and denominators should not be allowed to blind the children to the fact that the "compound fraction" is a mere statement, *one-half of two-thirds* which is one-third. They should *think* the relation.

The second principle is that a fraction is a statement of ratio. That is, ⅔ means not only two of the three parts into which 1 is divided—⅔ of a fixed unit—but one of the three parts into which 2 is divided—⅓ of the unit 2. It is ⅓ of 2, 2 divided by 3.

This can be made clear by much wholing and parting; first, of groups of objects, or of exactly measured dimensions, as inches, then of abstract numbers. It may be best to begin with easily divisible wholes, as 4's or 6's.

Then further practice will develop the truth that the ratios of numbers are not affected by the introduction of equal factors into both or by their removal from both, as, $4 \div 2 = 2$; $4 \times 3 \div 2 \times 3 = 2$; $12 \div 6 = 2$; $(12 \div 3) \div (6 \div 3) = 2$. Arranged in fractional form, $\frac{4}{2} = \frac{4 \times 3}{2 \times 3} = 2$; $\frac{12}{6} = \frac{12 \div 3}{6 \div 3} = 2$.

Much drill, both concrete and abstract upon such combinations will lead the pupil first to see and then to think the process.

This thinking (imaging) the process of such fundamental operations prepares the way for those more puzzling operations required for the addition, subtraction, and division of fractions. It makes possible the thinking of the function of the common denominator, which usually is not comprehended at all by the pupil who performs the operation by rule.

Thus, $\frac{1}{3}+\frac{2}{5}$. The common denominator is seen by inspection to be 15, which divided by the denominator and multiplied by numerator of each fraction, gives $\frac{5}{15}+\frac{6}{15}=\frac{11}{15}$. But why? The pupils cannot answer. But if they have been drilled in the principles above outlined, they see at once $\frac{1}{3}\times\frac{5}{5}+\frac{2}{5}\times\frac{3}{3}$ gives the equal fractions $\frac{5}{15}+\frac{6}{15}$.

For subtraction the only difference lies in the final operation, finding the difference instead of the sum of the numerators.

Division of fractions is still more puzzling, and even teachers sometimes are unable to see the reason for inverting the divisor and multiplying. Yet it is really as simple as addition to classes that have had the preliminary training outlined above. At least grammar school classes that have reached the formal study of fractions can easily think the process. For example: $\frac{3}{4}\div\frac{2}{3}=\frac{3}{4}\times\frac{3}{2}=\frac{9}{8}=1\frac{1}{8}$. This by rule. The process is really as follows: $\frac{3}{4}\times\frac{3}{3}\div\frac{2}{3}\times\frac{4}{4}=\frac{3\times3}{4\times3}+\frac{2\times4}{3\times4}$, a common denominator found by the short way already suggested. Dividing the numerators, we have $\frac{3\times3}{2\times4}=\frac{9}{8}=1\frac{1}{8}$

In other words the rule is merely a short method of dividing, the common denominator being "understood," that is, eliminated from the actual work, tho constructively present.

A process comprehended is vastly more interesting to the pupil than one performed by rule merely, and what is more important, it trains the pupil to think for himself. There should, however, be both rules and definitions, but they should be formulated by the pupils themselves after observation and manipulation. This cultivates that most important of all reasoning powers, the power to generalize, for definitions and rules are generalizations, having the especial advantage for beginners in the art of reasoning that they may be certainties, not probabilities.

After the children have done their best at constructing definitions and rules, it is well to compare the results of their efforts with the statements in the book, to make sure of accuracy, and to insure the best and most economical form of statement.

If the work, following the inductive method, at first seems slow, as compared with that under the rule, there need be no anxiety. The facility of later operations, due to a thoro understanding of the reasons, will much more than compensate for the earlier loss of time.

Of course, it is important that the development of a principle should not be continued after the idea is once firmly grasped. The power to think should be utilized as rapidly as it is manifested. Otherwise there will be loss of time and interest, if not actual arrest of growth.

In order to save time and to insure thinking the processes, it is important that the unknown quantity and the equation be introduced into the arithmetic quite early. The use of x for the unknown result is not difficult for grammar school pupils, and it opens the way to the time-saving processes which constitute one of the advantages of algebra over arithmetic. This, of course, both makes possible and requires the use of the equation.

$$\frac{2}{3}\text{ of }6=\frac{4}{5}\text{ of }x\quad \frac{2\times 6}{3}=\frac{4\times x}{5};\quad \frac{2\times 6\times x}{3\times 5}=\frac{4\times 3\times x}{3\times 5}$$

$$2\times 6\times 5=4\times 3\times x;\quad 60=12\times x,\quad x=5$$

This problem could more easily be solved by inspection and analysis; it merely illustrates the method which may be employed with more difficult problems. The x makes it possible to use the unknown result as if it were a known number in the equation. Thus the whole problem is clearly pictured and the process becomes visible to the mind's eye.

The preparation for the use of the equation should be first by means of tangible objects, as a balance with weights, or a scale of inches and feet, showing that the two members may be increased or decreased by addition, subtraction, multiplication, or division to any extent, provided both are equally affected, for this is the entire secret of the manipulation of equations. But once really grasped it makes easy the solution of the greater part of arithmetical problems, and best of all, it requires and develops thought, by establishing rational principles thru rational processes.

This phase of the subject might be developed indefinitely in application to the various topics. Especially might much be said of the orderly development of problems, stating them clearly and thinking them thru, but surely enough has been said to make plain the thought that work in arithmetic should be work in thinking, and not merely the performing of operations according to rule. Induction should take the place of authority, always bearing in mind the capacities of the children. Pupils after the development of a principle should formulate their own generalizations. In the grammar grades algebraic methods should be introduced, at least the use of the symbol for the unknown result, and of the equation.

The second phase of the cultural aim of the teaching of arithmetic is enriching the mental content, giving such knowledge of the physical and social world as may properly be given thru this study. This was treated quite fully in the last article and need not be elaborated here. Suffice it to state a few principles. Subjects should not be introduced into arithmetic for this end alone, but only when they furnish the best vehicle for conveying arithmetical thought. That is, the general knowledge given in teaching arithmetic must necessarily be incidental and subordinate to the arithmetical end.

But this leaves ample room for subjects of general interest and great value. Arithmetic must be taught as applied, to give both interest and practical value, and the choice of problems to illustrate principles supplies the opportunity for enriching the subject. Here is the weakness of most of the older text-books. The problems are superannuated, disconnected, and unreal.

A few simple principles may be stated as to the character of the problems to be used.

(1) They should be vital. They should have a meaning to the children. They may be drawn from their immediate environment, from the home life, the school life, the games played, from the other subjects studied, as history, or geography, or manual training, from current events, from any source of real and present interest. There are enough such problems available without resorting to the absurdities of the old books: "When will the hound overtake the hare?" In addition to the problems in the book, children should be required to gather material and make many of their own from actual conditions: the cost of a dinner, the building of a house or barn or rabbit hutch, the grading of a street, the profits of a newsboy. Their world is full of vital material for calculations of nearly all sorts found in a good arithmetic.

(2) There should be many connected problems, showing various relations. A series of real problems involving many arithmetical processes is much more interesting and requires more consecutive thought than many separate problems employing the same operations, and it imparts a more realistic view of life. Its content is richer.

For example, imagine a contractor figuring on the building of a house. Let the class draw the plans for the house to scale, doing their own measuring and calculating. Then let them take up the cost in detail; the excavation, walling, and flooring of the cellar, the building of the foundation, the lumber for the frame and covering, the flooring, plastering, and finishing of the interior, doors, and windows. Such a problem can be extended indefinitely to include furnishing, for instance. The children should themselves make all the measurements and drawings, ascertain the current prices of all material, and estimate the total cost, including labor.

The cost of the lot, and of such improvements as sewer, paving, and sidewalks may be added; also rental value. Or the property may be sold for a partial cash payment and notes bearing interest. A fire may occur and damage be estimated and insurance considered.

The possibilities of such a series of problems are infinite. Practically the whole field of arithmetic could be covered.

The limits are to be fixed by the degree of advancement of the children and by interest. As soon as interest wanes a new topic should be taken. For pupils unequal to such tasks simpler problems along similar lines may be used, as the laying out and planning of a school garden, the building of a trellis for vines, the making of kites and other toys.

In the study of the really practical branches of the application of percentage many interesting series of problems can be made that will give knowledge of civic conditions and of business method.

Under taxation, for example, local conditions should be found out by the children; the valuation, what percentage of actual value; the expenses of the various departments, as the basis for taxation; the fixing of the rate upon the assessed valuation; the taxes paid upon personal and real property; the amount paid by individuals. (This last would better be imaginary.)

Under interest, it is well to organize a bank in the school with play money and go thru with the operations, the children finding out by inquiry outside how the business is carried on.

Interesting and valuable problems may be taken from geography, using census reports and other available means of information; comparisons of cities and States in population, property valuation, business done in various lines, figured in ratios and percentages; length of journeys, miles of railroad and steamship lines; manufactures, agricultural products, especially local industries, all may be made to yield problems innumerable, while acquainting pupils with the world they live on and in. The alert teacher will find in the bustling, environing world an abundance of vital material for calculation.

A few of the newer text-books contain such problems and suggestions for more. These should be supplemented by similar problems drawn from the immediate environment and experience of the school.

The older books contain few such problems, if any. The teachers compelled to use these books should substitute for their problems in so far as possible others drawn from present available sources. These sources include the school and home life of the children, current events in the larger world, and practically all the other subjects in the school curriculum.

I have dwelt at somewhat greater length than I intended upon the details of instruction, but I have been led thereto by saddening observations and experience of the wasteful methods inculcated thru the most generally used text-books on arithmetic and still employed in many schools.

To recapitulate. The points I have endeavored to make plain are the three aims of teaching arithmetic: (1) Giving facility and accuracy in the use of numbers; (2) training the children to "reason justly," and (3) imparting such knowledge of the world and its life as is expressed largely in numerical terms.

The first end is to be secured by developing in the natural order of thought the various processes and then drilling on the operations until the simpler ones become automatic.

The second end is to be secured by seeing to it that all processes are thought thru, substituting the inductive for the authoritative method of approach, and in the higher grades by the use of the symbol for the unknown quantity and of the equation.

The third end is to be secured incidentally, thru choosing for illustration and practice such problems as are real, vital, and drawn largely from the field of the children's knowledge and experience.

C. B. Gilbert.

Apperception and Its Relation to Other Mental Processes

I. Illustrations of the Apperceptive Process.

EMERSON says: "No man can learn what he has not preparation for learning, however near to his eyes is the object. A chemist may tell his most precious secret to a carpenter, and he shall be never the wiser, the secrets he would not utter to a chemist for an estate. God screens us evermore from premature ideas. Our eyes are holden that we can not see things that stare us in the face, until the hour arrives when the mind is ripened, then we behold them, and the time when we saw them not is like a dream."[1]

This is a philosopher's statement of what Rosmini has called the *ruling principle of method*[2]: that a given order of cognitions can not take place until an antecedent order which furnishes its matter has taken place. Both authors have explained what at the present day we understand as the law of apperception; namely, that before an idea can enlighten the mind or in any way affect the mental life, it must be interpreted by what is already in the mind.

If I say to a group of people, "Die Morgen Stunde hat Gold im Munde," some know what I mean; others do not. They all hear the same sounds; yet the sounds are not the same to all. Those who have studied German have stored in some recess of the mind memories of things of which the sounds are symbols. Hence this sound-symbol calls up the thing formerly associated with it. This is what we call the "meaning" of the word. Each word in the sentence quoted has such an association, and all the words taken together are the sign of a thought. You who know German, therefore, apperceive the sounds. You "understand." But if you have no knowledge of German, the sounds knock in vain at the door of your mind.

---

[1] Essay on "Spiritual Laws."

[2] The Ruling Principle of Method. Rosmini. D. C. Heath & Co., 1889, p. 40.

The soul looks out of the ear-window, sees the stranger, and says: "I know you not; and strangers can not enter here."

A little Red Ball[1] who lived all alone decided one day to have a party. The invitations stated that no one would be admitted who was not known to some one already in the house. The first one to make his appearance was the Cube. "Very sorry," said the Red Ball, "but I do not know you, and therefore can not let you enter." The Cube concluded to wait until some of his friends should come along. Presently the Cylinder walked up to the door and rang. He was recognized and cordially welcomed. Now, the Cube was acquainted with the Cylinder, so he decided to try once more to get in. He rang the bell and when the host appeared, he said: "Please, Mr. Ball, my friend Cylinder has just entered, and he will identify me. When the introduction had taken place, Mr. Ball admitted the Cube with cordial greetings and apologies. Next came Mr. Pyramid. The host looked out and did not recognize the new guest, but both the Cylinder and the Cube recognized him and he was admitted. Then Mr. Cone arrived. Every one in the house knew him, and he received a rousing welcome. The Hemisphere also was known by everybody; the Ellipsoid and Ovoid by not so many, but they all got in thru some friend. After these, came Trees of the forest, the Grasses and Flowers of the field, and every Living Creature that moves on the face of the earth. All were recognized by the guests already assembled, and before the feast was over all the company were fast friends.

You see, of course, why the Red Ball did not know the Cube? The Ball is all curved surface; the Cube is all flat surface. There is nothing common between them. But the Cylinder, having a curved surface, would be known by the Ball; and, having two flat surfaces, would also be recognized by the Cube. Now, these solids that we have named, and their elements, are the "gifts" of the kindergarten, and form an apperceptive series that comprehends the material universe of knowledge. The trees and the grasses are but modified cylinders; all the varied shapes of animals and minerals are but modifications of some one or more of these type forms. The kindergarten, then, is a school which has for one of its primary objects apperception. The songs, the stories, the occupations, the mother-plays, are all intended to call out sensations, perceptions, judgment, feelings, and activities that form a basis for the apperception of all kinds of truth—material, moral, esthetic, and religious. And the immense advantage of such training is clearly apparent in classes where children with and without kindergarten training are taught together.[1] Not only in the lowest primary grade, but in all the grades, the apperceptive basis possessed by kindergarten children gives them an advantage over their companions.

---

[1] The author has a dim recollection of having read somewhere a story similar to this. But he can not recall where or when it was.

The mutual acquaintance of all the guests in the story before they part, represents the perception of the interrelation and unity of all knowledge which apperception gives, instead of leaving different kinds of knowledge as so many isolated facts to be held in mind by a sheer force of verbal memory.

Steinthal[2] quotes an anecdote from a comic paper to illustrate apperception, as follows: "In the compartment of a railway carriage six persons unknown to each other sit in lively conversation. It becomes a matter of regret that one of the company must alight at the next station. One of the others says that he of all things prefers such a meeting with entirely unknown persons, and that on such occasions he is accustomed neither to ask who or what his companions may be, nor to tell who or what he is. Another thereupon says that he will undertake to decide the question of the identity of his fellow passengers if they each and all will answer him an entirely disconnected question. They began. He drew five leaves from his note-book, wrote a question on each, and gave one to each of his companions with the request that the answer be written below the question. When the leaves were returned to him, he said without hesitation, to the first, 'You are a man of science'; to the second, 'You are a soldier'; to the third, 'You are a philologer'; to the fourth,' You are a journalist'; to the fifth, 'You are a farmer.' All admitted that he was right, whereupon he got out and left the five behind. Each wished to know what questions the others had received; and behold, he had given the same question to each. It ran thus:

---

[1] First Annual Report of the City Superintendent of Greater New York, 1899, p. 123.

[2] Quoted by James: Principles of Psychology, Vol. II., p. 108.

'What being destroys what it has itself brought forth'? To this the naturalist had answered, 'vital force'; the soldier, 'war'; the philologist, 'Kronos'; the publicist, 'revolution'; the farmer, 'a boar.'"

The point of the narrative is that each one answers the first thing that occurs to him; and that is what is most nearly related to his mode of life. "A question is a hole-drilling experiment, and the answer is an opening thru which one sees into our interiors." In other words, each of us perceives with what Lewes calls his own psychostatic state—his heredity, experience, temperament, present mood. And this internal contribution comes out in a man's point of view, his attitude toward truth. Thus we recognize a clergyman, a teacher, a politician, an artificer, a philosopher, by their several modes of *apperceiving.*

Sometimes we connect an idea with the wrong series, and thus deceive ourselves. I have heard a clergyman say that he once had a parishioner who had a very good wife and four children, all members of the church, but the man himself was indifferent to religion. He was prosperous in business, enjoyed excellent health, and every time he was approached on the subject of religion he made light of the thing and replied with a jest. Being so comfortable, he could find no room in his mind for a serious idea of religion, so he connected it with the apperceptive series of humor and wit. This made him utterly blind to all spiritual truth. The sun of prosperity was so bright in the sky of his life that the idea of light from another source seemed absurd. But when the night of adversity came; when the angel of death invaded his home, and took first one of his children and then his wife; and when finally he himself lay on a bed of sickness, racked with pain, religion was no longer a joke. The night of sorrow now shut out the sun of prosperity, which he had formerly supposed to be the only light of the world, and lo, the darkness revealed the stars of heaven, the "forget-me-nots of the angels"; and now he found an apperceptive mass of serious ideas in which religion found a place. Plato says education is "not filling a vessel, but turning the eye of the soul toward the light." Conversion in religion is precisely that. A man has been pursuing a course of evil or indifference; religion is not apperceived as a need of the soul. A sorrow overtakes him, or the law is about to forfeit his life, or some priest or layman turns his soul toward the light, and all at once things never before dreamed of break upon his view. He surrenders to God, exclaiming: "One thing I know, that whereas I was blind, now I see."

Might not wit and humor be explained as a connection of an idea with an unusual or unexpected apperceptive series? Take that passage in the Bible which speaks of ten virgins: "And five of them were wise, and five were foolish. They that were foolish took their lamps, and took no oil with them: but the wise took oil in their vessels with their lamps." Associated with a religious train of ideas, this parable is a serious exhortation to irreligious people. But the moment you place the idea of lamps without oil in connection with the bicycle and a policeman, you laugh. There is a sense of incongruity, and this seems to be the essence of fun. When the little boy finds he has a new sister, and then prays at night, "O God, please come and finish the baby; she ain't got no teeth," we laugh because of the association of the baby with a set of ideas clustering around an incomplete mechanism and its manufacturer.

A boy who is away from home wrote a letter to his father the other day, and in closing, added: "I send quite a number of kisses and a *kind smile.*" His father, in commenting upon this says: "I suppose the phrase 'kind smile' has meaning, but I must hold an autopsy on the expression before I conclude *what* it means."

Now, the idea of sending a kind smile by mail is funny, because the apperceptive series is a misfit. So also the father's comment creates a sense of humor because we do not, as a rule, apperceive the idea of a critical knowledge of language with an escort of ideas connected with a *post mortem* examination. But to the father such an association occurred quite naturally, because he was in a hospital undergoing treatment, and as autopsies were the order of the day in his mode of life, he apperceived with what was nearest to his personal experience, even as the five men did in Steinthal's story of the railway.

If the relation of the object to the new series is, however, fanciful or unreal, or remote, you refuse to laugh and declare the joke far-fetched.

II. What is Learning?

Undoubtedly the lay idea of the process of learning is that of receiving some external fact and storing it away in memory for future use. "To learn" the catechism is to commit the words of it to memory. "To learn" geography is to find out the answers to the questions in the book and remember them. "To learn" arithmetic is to commit the rules which govern the various processes and solve problems to fix those rules in memory.

Nor is it merely the layman who harbors this fallacious doctrine of learning. It was formerly the theory and still is the practice of a large number of teachers. The writer himself was thus taught in a country school thirty years ago. In those days the best text-books on method taught that the human faculties unfold in some such order as this: sensation, perception, memory, imagination, judgment, reasoning, feeling, will; and that consequently the subject matter of education is to be addressed to the faculties in this order.* This would require emphasis upon perception and memory before a systematic attempt to develop judgment, feeling, and will, thus reversing the natural order as revealed in a child's spontaneous activity, which shows that muscular action is the strongest of all the early instincts and necessities.

---

*Methods of Instruction. Wickersham. Lippincott. 1865. p. 41.

Modern psychology shows that if we take a cross-section of the child's mind we find in it all the forms of activity that are characteristic of the adult mind. There can be no perception without judgment and even implicit syllogistic reasoning, as Harris* has pointed out. Certainly the emotional life of the child is peculiarly rich and dynamically related to his intellectual processes. His will in the form of muscular activity, imitation, and automatic attention is enormously active. Hence the assumption that a certain one of the faculties should be addressed at any given time to the relative neglect of the other powers, is manifestly an error. Nature does nothing of the kind, but carries forward simultaneously the gradual development of all the activities, first in their rudimentary and later in their matured forms.

The saving fact is that nature will carry on her scheme of development in spite of teachers and curricula. We may hamper her during the six hours of school work, but the Great Mother takes care of her darlings the rest of the day and thru play and other instinctive impulses accomplishes her ends.

We return now to the question, What is learning? Locke compared the mind to a blank tablet, and education to the making of a record on this tablet. It is evident that such a figure is entirely misleading. If the soul at birth were nothing but a blank tablet, there is no reason why a sensitized plate in a camera should not write dramas, epics, and philosophies. The fundamental fact of learning is that the mind is a capacity, a power, a being, reaching out thru the senses as so many soul-tentacles, to receive impressions from the outside world These impressions are results of the actions of things, but they are nothing in the psychic life until modified by reactions from within. Sense-knowledge is not merely a something carried in over a sensory tract and deposited on the soul, but it is a resultant of two forces, a material and a spiritual, meeting somewhere and producing a spark in consciousness which we call knowledge. It is idle to say that the spark that follows the contact of steel and flint is caused by the steel, and equally idle to say that the flint is the cause, for both are necessary.

---

*Psychologic Foundations of Education. W. T. Harris. Appleton & Co. 1898. Sections 37–53.

These remarks are made to emphasize the *internal* factor of learning; to bring out the fact that knowledge is not an external content poured into an internal receptacle; not even a mere contact of two realities to produce a mechanical result; but an organic union of two phychic factors, the revived impression, representing the Red Ball in the allegory, and the new impression, represented by the guest. To this organic union we give the name of apperception, which is a generic term for designating the uniting or integrating power of the mind.

In Pestalozzi's time Verbalism had confined learning to committing the rules of Latin grammar. The memory was cultivated almost exclusively. Education was learning things at second hand thru books. Pestalozzi's contribution to pedagogy consists in his demand for sense-perception as the basis of learning. But Pestalozzi did not go far enough. He was not scientist enough to show how sense-perception could be utilized as an instrument of development. He rested in the mere fact of perception. It was enough that the pupil saw, heard, felt, tasted, smelled. The object as such was an end in itself. This error was propagated by his followers, who invented "object lessons," and it swept over the entire educational world a generation or two ago.

At this point Herbart comes to the rescue and completes the work of Pestalozzi. He, too, insists on sense-perception, not as an end, but as a means to facilitate the process of apperception. He inquires, "What is the nature, the time, the amount, the order of this observation?" If we compare the memory education to making bricks without straw, we may liken the work of Pestalozzi to supplying the straw. He furnished the raw materials of the structure. These are certainly essential, but as long as they lie in a heap, they are not yet the house, wherein the parts must be smoothed and squared and fitted into their places. Herbart explains the process of fitting the materials together. In his view it is not merely perception that we want but investigating, verifying, understanding. Facts as facts have no necessary influence upon the mental and moral life of a child,* and, therefore, Herbart says he would begin the educative process where Pestalozzi left off.†

To summarize, one may say then that the essential element of learning is apperception, which reveals the causal and ethical import of facts. In elementary education apperception is possible only thru the employment of sense-perception, that is, by making instruction concrete. In advanced education the pupil may apperceive without the use of actual sense-perception, but not without a reference to concrete individuals. This sort of learning is well illustrated by the dialogs of Plato, in which general propositions are established inductively by an appeal to individual experiences stored in the memory of the learner.

Learning may take a variety of forms. It may consist in reading a poem, or in committing it to memory; it may be committing a table in arithmetic or applying it in the solution of a problem; it may be studying a map, or drawing it, or modeling it; it may be the study of grammatical rules or their use in written or oral composition. From Nature's point of view, learning is always development, the increase of efficiency. Knowledge is a means of acquiring power and skill. Learning is not true to this ideal unless it becomes *efferent, active, creative.* Facts are to be absorbed only that they may nourish the roots of sentiment, motive, action, and thus build up the ethical body of the soul.

---

*Outlines of Educational Doctrine. Herbart. Macmillan. 1901. Sec. 35.

†Herbart's A B C of Sense-Perception. Translated by Appleton. 1896. p. 61.

III. What is Teaching?

Granting what has been said of learning, we may say that teaching is causing another to learn. And if learning is essentially apperception, teaching consists in so arranging the subject matter of education that it may be apperceived by the pupil. The teaching tool is the recitation, which has been defined as the scientific instrument for the adjustment of knowledge to the mind.* The Herbartians lay great stress upon the recitation, and have very highly developed it. They divide it into various steps, in number from two to five. De Garmo advocates four steps, as follows:†

(*a*) *Preparation*, which consists in calling up in review the apperceptive ideas to be used in the lesson, or if they be wanting, in establishing such ideas as mental pegs whereon to hang the new knowledge. If we wished to teach the drainage system of a continent, the preparation would consist in a review of what had been taught concretely of local drainage. If we were giving the first lesson in interest, the preparation might consist in calling up previous work in percentage, and possibly the development of the notion of rent as the recompense for the use of another man's property.

(*b*) *Presentation* is the bringing forward of the new knowledge which is to be interpreted by the ideas called up in the preparation. In the case of drainage it would be the extension, by imagination and the use of a map, to the larger scale of a continent, of the ideas of local drainage obtained from actual experience. In teaching interest the presentation would consist in passing from general percentage to a special kind called interest, in which a number of hundredths is taken in a year; and from the notion of rent paid for houses and lands, to rent paid for the use of money. Here the old is seen to contain the new and to explain it; while the new thus explained enriches the old by adding a new species.

---

*Educational Review, Jan., 1896 (DeGarmo, p. 40).

†The Essentials of Method. DeGarmo. Heath & Co. 1890. p. 32.

(c) *Formulation* or *Elaboration* is the third step. This consists of examination and comparison with a view to the discovery of some rule, principle, or law underlying the facts. Education begins with the concrete particular, but must pass to the abstract general. The water runs down the gutter of a street for the same reason that it runs down the mountain sides, forms a river, and flows into the sea. The drainage of a school yard, of a township, of a continent, of the whole world, is governed by one and the same group of laws. A process of calculating interest leads to a way of doing it, that is, a rule which the pupil can himself infer, because his mind has traveled the road which leads to it.

(d) *Application* is the fourth step. This is the synthetic work of the pupil, when he recapitulates a lesson in his own oral or written language, or when he models or draws a map. In arithmetic it is the solution of problems by means of the rule he has discovered. It is the drill whose object is to give facility in the use of processes, to give mobility to the new ideas and insure their permanent incorporation into the general stock of knowledge. It is the creative work of the pupil which results in development and reduces knowledge to habit.

IV. Criticism of the Formal Step.

These steps are considered by the Herbartians the essential characteristics of a good recitation. Whether the steps be few or many, and whether we believe in formal steps or not, some such order is observed, must be observed, by every successful teacher. There are many good teachers who have never heard of these steps. But they have found by experience that there are right and wrong ways of presenting a subject. They do not know why one method is good and the other bad, except from the results, and here is where they are at a disadvantage as compared with a teacher trained in pedagogy. No recitation ever given in any class by any human being was absolutely perfect. And when we are criticised by a principal or superintendent for not using his methods, it is barely possible that our method is as good as his. They may be both bad. The way to test a method is not to compare it with some other method advocated by this or that man, paper, or book; but to apply to it the principles of apperception; to see whether it has all the steps, or no steps, and what is the order of these steps.

The empirical teacher lacks this critical ability. Having no philosophy of method, he can not tell a good method from a bad one until he tries it; and if he finds his method a poor one, he is helpless until some one comes along and gives him a better one.

Herbart,* himself, recognized four steps, which he named (1)*clearness*, (2) *association*, (3) *system*, (4) *method*. These rubrics represent essentially what has been explained under De Garmo's four steps, and form the nucleus of a very important development of the Herbartian school of educators.

In the following outline Prof. Noire† has illustrated the process of apperception by showing the ideas that are antecedent and subsequent to the term "bread."

APPERCEPTION OF BREAD.

PLANTING.
Plow.
Harrow.
Soil.

HARVESTING.
Reaper.
Binding.
Hauling.

THRESHING.
Horse Power.
Steam Power.
Fanning Mill.

---

*Outlines of Educational Doctrine. Herbart. Translated by Lange. Macmillan. 1901. p. 53.

†Prof. Ludwig Noire, "Open Court," Chicago, No. 137

GRINDING.

- Mill.
- Dam.
- Millstones.

KNEADING.

- Dough.
- Yeast.
- Carbonic Acid.

BAKING.

- Oven.
- Fuel.

BREAD.

FOOD.

- Tissue.
- Life.
- Cell.

EATING.

- Chewing.
- Swallowing.

DIGESTING.

- Gastric Juice.
- Intestinal Juice.
- Bile.

NOURISHING.

- Absorption.
- Assimilation.

STRENGTH.

- Muscle.
- Gluten.
- Proteids.

HEAT.

- Carbo-hydrates.
- Starch.
- Fat.

The series is infinite, but we may begin with sowing and pass on up to bread, then down again to the effects of bread as food for the human body. Each intermediate term involves an independent series of ideas associated with it.

Dr. Harris* has pointed out that this series of ideas includes the four kinds of causes enumerated by Aristotle:

(*a*) The *Material Cause* of bread is the flour, yeast, lard, water of which it is made.

(*b*) The *Efficient Cause* is the energy involved in the processes of production—planting, harvesting, threshing, etc.

(*c*) The *Formal Cause* is the form which the cause produces at the different stages—flour, dough, bread.

(*d*) The *Final Cause* of bread is the end for which it is made—food, nourishment, life.

We are now prepared to see once more how much Herbart has added to Pestalozzi's work. The object lesson rested in the single thing; exhausted its qualities and then left it. This is not enough to educate the whole mind. We must have concrete things indeed, upon which the pupil is to employ his own senses; but the individual thing is nothing until it has been thought into its relations.

Joseph S. Taylor, Pd.D.

District Superintendent of Schools, New York City.

Teaching is the greatest work there is on God's earth. If you believe that with all your heart your community will soon believe it, too.

Some people seem to have a special faculty for discovering good traits in others. This faculty is not necessarily inborn. It can be acquired and is acquired by unceasing practice.

---

*Harris: Herbert and Pestalozzi Compared Educational Review. 1893. p. 417.

Spontaneous Attention—II

THE physical manifestations of attention are many and of considerable importance. We shall examine them with care, bearing in mind that we regard them as necessary conditions of attention, rather than as effects of this state of mind; in fact, they are frequently its constitutive elements. Far from being subordinate to our purpose, the study of the physical manifestations is really one of prime importance. Here and nowhere else shall we have to search in order to obtain an approximately clear idea of the mechanism of attention. The moment we divest attention of all the physical concomitants that determine and give it substance, we have nothing left but a pure abstraction, a phantom.

We must ever bear in mind this fundamental principle: Every intellectual state is accompanied by concomitant physical manifestations. Thought is not, as some seem to believe, an event taking place in a super-sensual, ethereal, inapprehensible world. We hold with Setchenoff, "No thought without expression"; that is, thought is a word or an act in a nascent state, a beginning of muscular activity. The sensorial forms of attention testify so clearly to this principle that it cannot be questioned. The same applies to that internal, hidden process called reflection.

The physical concomitants of attention can be classified in three groups of phenomena: Vaso-motor, respiratory, and motor (or phenomena of expression). They all denote a state of convergence and of concentration.

I. Suppose that twenty persons fix their attention for five or ten minutes upon their little finger. Some will have *no* consciousness of any sensation whatever; others will experience certain distinct sensations, as pressure, pain, arterial pulsations; the majority will feel at least a faint impression of weight or pressure. This simple experiment raises the question: Are there not always in the several parts of the body sensations, due to incessant modifications of the tissues—modifications which pass by unperceived unless attention is fixed upon them? Can the act of attention increase the vascular activity of the sensorial ganglia, and there produce subjective sensations? Finally, can the sympathetic centers be aroused, can the vaso-motor nerves be so influenced as to produce certain transitory vascular modifications in the finger with which the sensation is connected?

The first supposition seems probable only to a very slight degree. Indeed, it is always possible to experience a sensation in the finger, if we set about attentively to seek for this sensation.

The two other suppositions are perfectly well grounded. The sensation experienced is perhaps partially subjective; but I believe that the finger, upon which thought is concentrated for a sufficient space of time, is really the seat of a sensation. The resulting vascular modifications are felt in the form of arterial pulsations, heaviness, etc.*

It is highly probable that attention is in every case accompanied by local hyperhaemia of certain parts of the brain. The vascularization of these parts increases by reason of greater functional activity. This local hyperhaemia is caused by a dilation of the arteries resulting from the action of the vaso-motor nerves upon the muscular integuments of the arteries. The vaso-motor nerves depend on the great sympathetic nerve, which is independent of the action of the will, but subject to all the influences of the emotional states.

The experiments of Mosso, among others, show that the slightest and most transient emotion causes an afflux of blood to the brain. "There is," says Maudsley, "a more active circulation of blood thru the brain during function than when it is in repose. Hence, we may justly conclude that the attention quickens the circulation in the nervous substrata of the ideas concerned in the effort. Thus when an idea takes a strong hold upon the mind, an active circulation in the brain is kept up, which will not let us rest or sleep."† Note, too, the flushing

---

*Hack Tuke, "Mind and Body." Chapter I.

†Maudsley "Physiology of Mind." Gley: "*Sur l'état du pouls carotidien pendant le travail intellectual.*"

(sometimes the pallor) of the face after a spell of protracted attention.

II. The respiratory modifications which accompany attention resemble the motor phenomena proper, and enter partly into the sense of effort. The rhythm of respiration changes, slackens, and sometimes comes to a temporary stop. "To acquire the power of attention," says Lewes, "means to learn how to make our mental adjustments alternate with the rhythmic movements of respiration. It is a felicitous expression, that in the French langnage, which designates a clever but superficial thinker as one incapable of any work *de longue haleine*—of long breath."

The yawning which follows a protracted effort of attention is probably the effect of the slackening of respiration. Often, in like instances, we produce a prolonged inhalation, in order to renew abundantly the air in the lungs. The sigh—another respiratory symptom—as several authors have pointed out, is common to attention, to physical, and moral pain: Its object is to oxygenize the blood that has been narcotized by the voluntary or involuntary stoppage of respiration.

All these facts are so many proofs in support of what has been said before, that attention is an exceptional, abnormal state, which cannot be long continued.

III. The movements of the body, which are said to express attention, are also of special importance. Here we can deal with them only in part; the rest belongs more properly under the head of voluntary attention.

Let us proceed to investigate the motor mechanism of attention. It was Duchenne of Boulogne,—a pioneer in this as in various other fields,—who conceived the idea of substituting the experimental method for the pure observation practiced by his predecessors, Ch. Bell, Gratiolet, etc. By the aid of electricity he provoked the isolated contraction of a facial muscle of a man affected with anaesthesia, and by means of photography he fixed the results of the experiment. According to the theory set forth by him in his *Méchanisme de la physionomie* *humaine* (1862), a slight contraction of a single muscle is often sufficient to express an emotion; every emotional state produces a single local modification. According to him, the occipito-frontalis is the muscle of attention; the orbicularis superior of the eye-lids, the muscle of reflection; the pyramidal, the muscle of menace; the zygomaticus major, the muscle of laughter; the eye-brow muscle, the muscle of grief; the triangular of the lips, the muscle of contempt; and so on.

Duchenne limited himself to stating merely the facts. Darwin went further. Applying the comparative method, and relying upon laborious researches, he investigated the origin of the different mechanisms of expression; he sought to discover why the contraction of a certain given muscle of the face, is necessarily associated with a certain given state of mind.

In the absence of these minute investigations all attempts to explain the mechanism of attention would have been premature. How, indeed, is it possible to explain a mechanism, of whose parts we know nothing?

Let us see, in a general way, what is known concerning attention in its two forms; as applied to external objects (attention proper), or to internal occurrences (reflection.)

TH. RIBOT.

Dr. Rice's presentation of his "Test in Arithmetic" will be continued next month. His discussion of the need of comprehensive and thoro investigations such as he himself undertook some years ago is a most important one. He is the pioneer in this field. The plan represents an entirely new departure in pedagogical procedure. In the past we have too largely reasoned on a basis of metaphysical and psychological assumptions. Hypotheses rather than facts have formed the basis of judging educational practice. There have been no universally accepted standards for weighing results. Teachers have in consequence failed to be accorded just treatment in the criticism of their labors. The elaboration of the ideas presented by Dr. Rice means nothing short of a revolution in the department of school methodology.

The Autobiography of a Teacher

V. The Spice of Life

I DID not return to Kentucky. My capitalist friends wanted me to go back, and it now seems to me rather unreasonable that I declined, but I conceived the idea that a most moral gulf yawned between their ideal of life and my own. They were really much more tolerant than I, for knowing my position they still wanted me to represent them in the wilderness; while I, knowing theirs, but perfectly free to follow my own, was unwilling to do so. But at twenty, one is apt to hold fast to the doctrine that "My right is the right," and to believe, of course, that it is non-transferable.

So again I stood with the world before me. It was a different person, however, who now confronted it. I had tried my wings a bit in Kentucky, and now believed more strongly than ever that I could do what I wanted to do. Except in times of illness and consequent physical depression, this tonic belief has never left me. It has helped out my one little talent amazingly, and has done more than anything else to keep it out of the napkin. I might almost say that I am now afraid to go in for anything unless I really and truly want it, so sure am I to get it. I hope that this does not sound like boasting. In reality I write it in deep humility, for it is a necessary corollary of such a belief in the supremacy of the will that if I only willed strongly enough to be a wise man, hero, or saint, such I would inevitably become!

Lest this doctrine be discredited by the apparently contradictory experience of life, let me point out that the process confessedly requires time, and that we commonly fail of our desires because they are one thing one day and another thing another day. Before we get well under way our purpose changes, and we must make a new start. And then, as even our optimist Emerson says, "Men are as lazy as they dare to be!"

I remained at home a week or two, and then took occasion to spend a fortnight in Washington. I went there with an old family friend, a physician of great intuitive power, who had saved my life when I was a lad of fifteen, and had rendered me the large service of encouraging me to think that I could go to college. I never realized my indebtedness to this unusual man, or my genuine affection for him until he died. He meant to visit a sister in Washington, and so it was arranged that I should board quite near her house. When we reached the city I had another lesson in Southern hospitality. Madame insisted that I should at least stop with them over night and not look up my boarding place until the next day. The following morning I set out as a matter of course, and secured pleasant quarters in the immediate neighborhood. But I had reckoned without my hostess. When I came to go, she absolutely declined to allow it, insisted that I should explain matters to the boarding-house people, and should remain with her for the fortnight. And this is what I did. It was with serious misgivings, tho, for I had hopelessly priggish ideas about accepting favors from strangers. Happily I have got over all that now, and accept things right and left thankfully, unquestioningly, and when I can, I give. And as I take of one and give to another it is the same thing and matters nothing, for the true livers of life are not traders, that they must be forever balancing accounts.

It is needless to say that I had a very happy fortnight. My new friends belonged to the permanent colony and had a large mansion on M street. There were two daughters in the family, and three sons, some older than myself and some younger, and all of them, as well as the gracious father and mother, were as kind to me as mortals could be. I went out to little parties, I met their friends, I walked, I drove, I visited the interesting government departments, I went to the theater a great deal. It was a genuine holiday and of the best sort.

I got home in time for Christmas and my twenty-first birthday, again I hope a little bigger for the outing. Early in

January, I was off once more, this time quite alone and on my own responsibility, as befitted one who had just attained his majority. I made a tour thru Pennsylvania to visit the most important iron works. I had always been interested in the metallurgy of iron, from the moment I began studying it at the university, and was, indeed, hesitating between the rival attractions of geology and metallurgy. It was midwinter and the State was well under the snow, but I went from one end to the other, full of the spirit of investigation. My route took me up to Lebanon where there are excellent works, out to Cornwall to see the famous ore deposits, to Heelton, to Altoona, to Johnstown, and finally to Pittsburg. It was really an illuminating trip, for I saw the very best that our American world had to offer in the way of iron and steel smelting. I do not know how the comparison stood then, but I suspect now that Europe had nothing better to offer. The tremendous scale on which the industry is conducted, the scenic reactions in the giant blast furnaces and Bessemer Converters all appealed to my imagination, and gave me an artistic, almost poetic pleasure; while I learned much in every way, I also found, to my intense satisfaction, that my own knowledge was singularly practical and up-to-date. The iron industry moves so rapidly that all technical instruction in the subject is apt to be a little belated. But I found myself familiar with all the most recent inventions, and realized with a great rush of gratitude how excellent had been the instruction in that department of the university. It had been given by our professor of geology, a German trained in Germany, and saturated with the scientific spirit. A modern teacher would shrug his shoulders at the appalling list of subjects taught us by that one man, geology, mining engineering, paleontology, crystallography, mineralogy, mechanical drawing, metallurgy, blow-piping, assaying, volumetric analysis, I am not sure that I can ever recall of the subjects. As far as the time allowed he taught them well. I felt, it may be remembered, some dissatisfaction with his action in the assistantship matter, but my appreciation of his sound scientific spirit and faithful teaching has increased with the years. For some incomprehensible reason, I think on the plea of economy! he was afterwards dismissed, and the university voluntarily lost one of its very best teachers. I remember that I used to find his lectures on metallurgy somewhat difficult to take, I think it was because they were so brimful of new ideas and involved so many diagrams and so much freehand drawing. I went up to him one day after a particularly difficult lecture, and asked, rather complainingly, I fear, why he did not give us a text-book in metallurgy. It was really a very childish question. He looked at me in smiling contempt, shaking his head as he always did when any of us asked particularly foolish questions. "Why, my dear sir," said he, "these things are not found in any *text-book.* They are the very latest news from the actual, practical world. I get them where I can from technical journals, from the proceedings of scientific societies, from journeys of my own, where I can. There is no *book* that will give them to you." I realized all this on that journey thru Pennsylvania, and realized, as I have said, with a very genuine gratitude.

I think I must have carried some letters of introduction with me. Occasionally I ran across a stray cousin, a college chum, or some friend of boyish times. But usually I was wholly dependent upon strangers for the success of my inquiries. Everywhere I met with the greatest kindness. The men showed me over their works, took me to what they regarded the most interesting process, explained their last methods in chemical analysis, lunched me at their clubs. One man out at Cornwall gave me a beautiful sleigh-ride across the Lebanon valley, so that I need not wait for an inconvenient train. It was the same everywhere. I had added lessons in *Camaraderie,* as well as in iron smelting. I came back by the southern route, visiting my delightful cousin in Maryland, and stopping over at Washington to see Colonel Powell. I made a half-hearted effort to get work on the United States geological survey, but either my mode of approach was not effective, or the force was really full, for the effort came to nothing.

I got home late in the winter, rich in new experiences, but resolved, in spite of the impressiveness of those experiences, to stick to geology rather than to go in for metallurgical work. My interest in iron and steel had been much deepened by the trip, but I began to detect in myself, even then, a distaste for all salaried and routine positions. I did not so phrase it, perhaps, but all the fellows I had met seemed to me so many slaves. And then the terrible monotony of their work appalled me. One good chum was inspecting rails for the Pennsylvania railroad, and this he did day after day. A lively boy whom I had met years before in the White Mountains was making manganese determinations in steel, and this he did day after day. A cousin at Altoona was busy with some other recurrent work. And so it was all along the line. I do not know the effect of this monotonous toil on other people. Some observers, onlookers, for the most part, mark you, and not participators, say that the effect is salutary. But I know very well what the effect upon me would be. It would be to bring despair. It is, perhaps, a difference in temperament.

At any rate, my decision to keep out of that impersonal, routine, salaried world of corporations still seems to me a very wise one. I have since held salaried positions, once for as much as five years at a stretch—but they have been positions of such large flexibility that I have practically been my own master all my life. I may not graciously dispute the criticism that this freedom of mine may have cost me the loss of much valuable discipline. But neither have I any reason for relinguishing my fundamental belief that *self-possession*,—the use of one's own time and strength and powers,—is a heritage which no man may abdicate without sacrificing a part of his manhood. Those who wish to sell their time and services must of course do so. It is not for me to say. But I may properly add in defence of that free-lance policy whose praises I am forever singing, that measured in terms of the interestingness of life, it amply justifies itself. Starting out as I have said with very slender equipment in the way of either health or ability, I have found life much more interesting than it promised to be, more interesting even than I expected it to be when I looked at it thru the traditional rose-colored spectacles of the youthful baccalaureate. And I have found it very full of unofficial opportunities for service.

Having decided upon geology, it still remained for me to find some suitable point of application. I should hardly have been my mother's son had I sat down and waited for the opportunities to come to me. My mother had no sympathy with poor Mr. Micawber. I do not recall where the idea comes from, but in this emergency I hit upon a plan so small and so productive of good results that I may be pardoned for dwelling upon it at some length. Indeed, I even think that it had just a very little touch of genius about it.

There was, and happily still is, a distinguished geologist living in Philadelphia whose name is known both sides of the water. He was a stranger then; now he is a friend. I had never seen him. I knew him only by name and reputation. I had, however, conceived an admiration for him which, in view of the slight knowledge it rested upon might almost be considered romantic. I decided that I would be this man's assistant. It has always amused me (and perhaps him, too), that I left my friend-to-be no choice in the matter. It is one of the delightful things about youth that "to will is to act." Had I thought over my plan any great length of time, I might not have had the courage to put it into execution. As it was, I called almost immediately at the office of my future friend. I got there so early that he had not yet arrived. Indeed, I think I waited at least an hour for him. I was armed with no credentials or recommendations of any kind. I had only my professor's visiting card. At last the great man arrived. He took the card, glanced at it, and asked somewhat brusquely what he could do for me. I told him very simply and directly that I wanted to be his assistant. "But I don't want any assistant!" he cried, evidently somewhat taken back by what must have seemed amazing assurance on my part. I do not remember, however, that I was the least bit discouraged. He asked me to sit down, questioned me very kindly about my plans, and seemed genuinely interested in my answers to his inquiries as to how I came to seek him out. During the course of talk I gathered that he once had an assistant who proved not wholly satisfactory, and that his general attitude towards assistants was not only not favorable but even distinctly antagonistic. He was just starting for Boston to attend a meeting of the American Institute of Mining Engineers and asked me to send him a letter there telling him further about my proposed plans. After a little more talk I took my departure, leaving behind me a man at once amused and interested. It was the beginning of a life-long friendship, and one that has been to me of great value and helpfulness. I sent the letter to Boston. I remembered that it contained thirteen pages of closely written matter. Had my friend been less kindly and patient, such an epistle must doubtless have appalled him, and ended our friendship before it began. Instead of that, he received this youthful out-pouring as a human document, read between the lines as well as the lines themselves, and allowed the letter to deepen an interest which he evidently already felt. To make a long story short, my good geologist not only accepted me as his assistant, but moved to another building in order that we might have a laboratory as well as an office.

I remained with my friend for nearly two years. I may not speak of our association in much detail, for happily my friend is still living and our friendship is too sacred to be made public in any sense. But I think he cannot mind if I say that while an assistant gets to know his chief as intimately as does the traditional valet his master, such a knowledge in our case only deepened my own affection and admiration. It was an association in every way fortunate for myself. My friend was generosity itself. He gave me really more than my share in the proceeds of the office, and voluntarily increased it as he conceived my services to be of increased value. In our final settlement, I felt obliged to send back his last check as being too manifestly an over-payment. I mention these details because there are persons who imagine that business relations cannot be idealized.

But better far than any financial gain, my friend gave me the frank comradeship of an intellectual and singularly high-minded man. My own duties were not very heavy, not so heavy indeed as I could have wished, but they were varied and added much to the sum total of my growing experience. I made geological maps. I assayed ores of all kinds. I analyzed rocks. I took part in geological examinations as far afield as Virginia. Our most important case was in Mexico. My friend did the field work himself, while I remained in Philadelphia attending to the office, assaying the ores as they came in, and doing such drawing and writing as were necessary. It is needless to say that with my love of travel and adventure, I should like to have changed places or, better still, have gone with my friend. Had he known how keenly I wanted to go I am sure that he would have arranged it. But it was only reasonable that I should stop at home and attend to the office end of the work.

I had much time for reading and study, and as we had an excellent scientific library, the spare moments could all be occupied to advantage. I had become a member of the Institute of Mining Engineers, and contributed one wholly unimportant paper to their proceedings. I had one little copper case of my own, involving the preparation of a report. Beyond these I do not remember to have done any writing. As far as I remember all my ambitions at that time were professional, and everything else slumbered.

My friend lectured occasionally at the Franklin Institute, and sometimes allowed me to help him with the experiments. Afterwards, thru his kindness, I was invited to lecture there myself. I was too ambitious to say "No" to any opportunity, but these first lectures of mine were very nervous occasions. I have distinct and painful memories of tramping up and down the little ante-room, apprehensively watching the clock crawl around to eight, and then, very weak about the knees, going into the lecture-hall to make my bow to the heterogeneous audiences that then frequented the Institute, and to wonder why under the sun my voice sounded so horribly tense and unnatural. Once under way, however, my nervousness left me and I generally managed to end the lecture with all flags flying. I may have delivered half a dozen lectures there in half as many years. I chose such subjects as "Aluminum," "Glass Making," "Iron and Steel Smelting," and once I essayed a philosophical lecture under some such title as "A Chemical Prolog."

My friend always spoke well of these performances, and encouraged me to go on lecturing. But I came to feel that his judgments, keen and often severe as they were towards others, were lenient and ever over-generous towards me. Our intimate association made it possible for him to form a very high opinion of my good intentions, and in his large-heartedness he sometimes took intention for performance.

I went to no end of trouble in preparing these lectures, but really I think they were not very good. So grave became my own doubt of the propriety of my lecturing any more, that one of these lectures, I think it was the last one I ever gave at the Institute, I invited two very critical friends to attend and to give me their frank opinion. But I should have invited three. For one said: "By all means go ahead" and the other said "Don't," and so I was left just where I was in the beginning.

While I cannot think that the audience got very much out of these lectures, personally, I got a great deal. The necessity of arranging my material into something like an intelligible whole forced me to give more attention to form than I might perhaps have done otherwise. I did learn, after a fashion, to begin, progress, and end, in place of the customary formula,—to begin, wander about, and stop. But my chief gains were even more strictly literary. Whatever merit my own writings may possess in the matter of style is largely due to two causes, two habits, if I may so express it; the habit, which I have always mentioned, of reading as far as possible only really first-class writers and the habit, made possible by these and subsequent lectures, of writing for oral delivery. The ear is much more sensitive in these matters than the eye. A bad construction, an obscured meaning, a needless repetition, a lost point when given voice by the writer himself, offend him too keenly to be willingly endured. There are few of us who have ever lectured, or read little papers at Browning Societies, or spoken in teachers' meetings, who cannot recall the chilly sensation that played up and down the spine when we came to some particularly atrocious bit of writing which we had handled lightheartedly enough with pen and ink, but which became a far stiffer task when it came to inflicting it in all its naked ugliness upon ears as sensitive or more sensitive than our own. As a matter of fact it is an extremely good habit to write always as if each word were to be spoken; and in case of doubt to let the ear read. A sentence that will not read well at the mouth of a distinct, even loud-voiced reader, would much better be re-cast. It may properly be urged that such a habit would make for an easy colloquialism rather than for academic distinction, but then if one writes always with a cherished object in view, that is just what one wants,—to speak to people, and one may reasonably hope that the more abiding grace of style will not ultimately be wanting.

One other advantage I got from my Franklin Institute lectures, which proved in time to be a very considerable advantage. They were printed, all of them I think, in the journal of the Institute, and I was always furnished with a generous number of reprints. One of these, the one on "Glass Making," I sent with natural, if not commendable pride to Professor Youmans, the editor of the *Popular Science Monthly*. He was at that time a complete stranger to me. Happily, something in the prolog to the lecture caught his eye, and brought him over to Philadelphia to ask if I would write a series of articles on "Glass" for the *Monthly*. This was the beginning of a pleasant connection with the magazine and of a helpful friendship with Youmans that lasted as long as he lived. I wrote much on glass, indeed, I came to be regarded, much to my own surprise, as something of an authority on the subject, and in the end, feeling that I had said all I had to say, I had to refuse out and out to write another word. It is sometimes embarrassing to get the reputation of knowing more than you do know about a subject, for I had to decline only the other day to serve on a committee of judges for glass and porcelain manufactures, and to decline on the ground that I was not qualified. I think I wrote five articles on glass for the *Monthly*, all illustrated, and followed them up with articles on a variety of other subjects, chiefly educational.

Some of these fell into the hands of people in New England, and in the end quite changed the outer current of my life. I did not realize these possibilities when I began, very weak about the knees, to lecture at the Franklin Institute, and had I done so, I might have been still more nervous. But I am getting somewhat ahead of my story.

To return to my friend, my scientific god-father, as I came to call him,—our relation was that of senior and junior partner, employer and employed. He might have made use of my services with strict regard to their objectional value, and tho the relation would hardly be ideal, I should certainly have had no right to complain. But I cannot remember that he ever did this. I do not know whether it was conscious or unconscious on his part, but all the work that fell to my share was beautifully educative. In our busiest moments my friend, like a true god-father, never seemed to forget that it was my own intellectual and spiritual development that was the most important part of our office work. Often he would interrupt the work altogether and carry me off for a long walk. A Philadelphian of the Philadelphians, he knew our common city by heart. As we roamed over unfrequented quarters on thru the outskirts of the city, he talked about matters which he felt might enlarge my own somewhat limited horizon. He did it with such fine tact, however, that it was not until years afterwards that I quite realized he had done it for my sake and not simply for his own amusement. I have often wondered what promise he saw in me to make such unusual kindness seem worth while. We were in marked contrast. This robust, full-blooded, intellectual giant, and my own slight self. My friend was an agnostic, but one of the most religious men that I have ever known, and certainly one of the most upright. He wanted my own beliefs to be at least intellectually sound, but at the same time he had a delicate fear of disturbing my still somewhat conventional faith. When he read a book which seemed to him important, he shared it with me. Indeed, he still occasionally does so and writes in some such convincing fashion as this: "Have you read so-and-so? *You cannot afford not to.*" I have read in Emerson that all life is discipline, and I used to ponder over the words, quite believing them, but not quite realizing them.

In this association of ours I learned unconsciously that work may be made deliberately educative, and that if it is not, it really fails of its highest office. I gained much from the large way in which my friend always treated me. I have tried to employ some of his methods in dealing with my own boys. In particular I have followed his example (tho with much less tact I fear), and taken them on long tramps and outings, had them at my house in town and country, so that I might reach their hearts and intellects more closely than is possible in the more formal life of the school-room. But I have said quite enough to show how large a part this man played in my real education and how deeply I am indebted to him. Should these lines ever come to his notice, I know that for the sake of the love and the gratitude they betoken, he will pardon what would otherwise be a transgression.

During the second year of our partnership, that is during September, 1884, there was an imposing gathering of scientists of the American and British Associations for the Advancement of Science, and of our Institute of Mining Engineers. As assistant secretary of the reception committee it fell to me to aid in arranging for the entertainment of our guests, and to share a correspondence with the many delightful and distinguished persons. I did not know until then that letter-writing could be made such a fine art. My pleasure in the literary quality of much of the correspondence made considerable amends for the unavoidably drudgery. The British members, often so reserved and chilly in actual intercourse, dropped this mask in their letters and wrote with particular charm. They have a greater gift for letter-writing than we have. One notices it constantly in the bulky and voluminous memoirs which form the real staple in current English literature.

The weather, unfortunately, was unusually and distressingly hot. Altho our friendly citizens opened both their country and town houses and did everything that hospitality could suggest, we found it difficult to persuade our foreign guests that such heat was most unusual. I think that many of them returned to Europe under the firm conviction that the worst tales they had ever heard about the American climate were probably less than the truth.

In spite of the excessive heat, I remember the whole meeting with great pleasure. I had, of course, entree everywhere, and the right to take my mother and sister to such meetings and social affairs as they cared to attend. For me it was a truly fateful occasion, much more fateful than I realized at the time, for among other people, I met Professor Woodward, of St. Louis, and got from him my very first news about manual training. Our meeting was quite by chance. It was on the beautiful excursion made by the joint societies to the coal regions of Eastern Pennsylvania, and over the picturesque Switchback. My mother and sister were with me. As the excursion promised to be very popular they sat together and I occupied a seat directly back of them. As the car began to fill up, a tall, friendly looking stranger came along and asked if he might occupy the vacant seat at my side. I quickly assented, and fate, in the person of Professor Woodward, sat down beside me.

We were not slow in getting acquainted. I presented him to my mother and sister, and the four of us had a very happy day together. Professor Woodward, I need hardly say, was deeply interested in the new scheme of education known as manual training, and full of the school he was establishing at St. Louis. He talked to us most entertainingly about the new movement, and before the day was over, had us all enthusiastic about it, my mother quite as much as myself. Nothing came of the matter for perhaps a couple of years, but neither of us forgot it. I do not remember that it occurred to me at that time to take any active part in the movement,—it was the philosophy of the system I think that then interested me; but later, when the opportunity did come, it found me prepared.

When the science meetings ended, I think I must have been a little done up by all the heat and excitement, for it was proposed that I should take a trip to Colorado. My friend was willing to have me away from the office for a month, and kindly got me a pass to Denver and back. I was afterwards with my friend from time to time, and there has happily never been any break in our friendship. But this western trip was practically the end of our partnership, for Colorado opened up a new and curious chapter in my life,—a gentle prelude with a melodramatic ending.

C. Hanford Henderson.

With the installment in the present number Dr. Gilbert completes his discussion on the teaching of arithmetic. Last month, by an oversight, it was stated that reading would be taken up this month. His treatment of this topic will be given in the February number.

The Early School Teaching of the Jews

BETWEEN a nation's intellectual activity and its educational ideals some relation undoubtedly exists, altho it may not be easy in all cases to discover it. The inquiries which have been made in recent years into the school systems of foreign countries testify to our belief in the connection, and prove its existence. The records of the nations of antiquity invariably tell us something about the methods adopted in the training of youth; but at best such information is scanty, and does not enable us to form any clear or definite idea of their educational aims and efforts. In the case of the ancient Jews, the task of presenting in some detail a picture of their school system is less difficult. Questions of school organization, of educational policy, and of methods of instruction occupied, during their early history, a prominent place in the thoughts of the people, and in their voluminous literature we possess abundant material for realizing their ideals.

The period of educational development to which I here refer commences some time after the Babylonian Exile. It includes the most eventful epochs of Jewish history—the birth of Christ, the siege and fall of Jerusalem—and it embraces those centuries during which the literature known as the Talmud was being formed and codified. The Talmud consists of two distinct parts: the text, which embodies the traditional or Oral Law called Mischna, and a running commentary supplementary to and illustrating the text, called Gemara. The former is in Hebrew, and the latter, for the most part, in an Aramaic dialect. The two combined constitute the Talmud, which means "Learning," and is the source of all our knowledge of the inner life and habits of the Jewish people, of their political and social government, of their religion and philosophy. The most superficial acquaintance with the contents of the Talmud, and a great part of it is accessible to the modern reader thru translations, shows the inextinguishable love of knowledge which characterized the Hebrew people of olden times; their respect, rising to veneration, for the true scholar; their passion for learning, and the strenuous efforts and sacrifices which they made to train their children in the ways of wisdom. A life devoted to study was regarded as the highest life; but it did not suffice that a man should study and treasure up knowledge for his own use or enjoyment; it was essential that he should impart it to others. "He who studies the Law," says the Talmud, without "spreading it is like unto the myrtle in the desert."

THE "LAW."

The word Law, in Hebrew *Torah,* which occurs in the passage I have quoted and constantly in all Hebrew writings, has a very wide meaning in Jewish literature. Originally, no doubt, it meant the Law of Moses, or possibly the ordinances contained in the Book of Deuteronomy. But gradually it came to mean much more than this. It included at a very early period of history, probably before the time of Ezra, and certainly then, a number of traditional enactments and sayings, known as the Oral Law, which were supposed to have the same authority as the Pentateuch, and which were first committed to writing towards the end of the second century under the direction of Rabbi Judah the Prince. The word *Torah* became a synonym for lore or learning, embracing both literature and dogma, the discursive histories and parables of the people as well as their legal enactments. The one class of writings was known as *Hagadah,* and the other as *Halacha.* Much in the same sense as our own word "Law" has a double meaning, expressing the ordinances of the State and the sequences of natural phenomena, so the word Torah was applied to the Biblical and traditional statutes as well as to the established order of the Universe, both of which were regarded as equally divine.

It is very necessary to understand this extended meaning of the word "Law," as it was used in olden times, in order to appreciate the true significance of the many Biblical and Talmudic passages in which it occurs, particularly in relation to the value of knowledge and the importance which, from the earliest times, the Hebrew people attached to the education of the young and to the pursuit of learning for its own sake. Scattered thruout the Talmudic writings are detailed regulations on school organization, on the subjects and methods of instruction, and on the qualifications of teachers; but all these are closely associated with the general aim and purpose of study and school training, which was no other than right living, that is, living according to the Law, in the sense in which the word was then used. Learning, altho it came to be regarded as the primary aim of life, was in reality a secondary or mediate end, the final object being right conduct, to which such knowledge as was then accessible was the only sure and safe guide. The saying *non scholæ sed vitæ discimus* occurs, variously paraphrased, in many parts of the Talmud. Far weightier, we are told, is the fulfilment than the study of the Law. And elsewhere, "Not learning but doing is the real essential."

It is to the Bible that we must look for the origin of the school methods and educational ideals which we find more fully developed in post-Biblical literature. Indeed, the text of the Bible was the ultimate authority for all State regulations and social ordinances, altho much casuistry was frequently displayed in the endeavor to reconcile the Biblical text with the necessities and requirements of every-day life. To the Bible, however, we can trace the germ of the system of education, which was in no way altered, but was only further developed, in later times. Home training was the central idea of the system. This is very fully expressed and illustrated in the Mosaic precept, which occurs in the passage declaratory of Israel's faith in the unity of God. "These words thou shalt teach diligently to thy children, and shalt speak of them when thou sittest in thy house, when thou walkest by the way, when thou liest down and when thou risest up." A whole volume of pedagogic rules might be deduced from these words. They clearly show that in very early times the obligation was thrown upon parents to personally direct the education of their children, and that religious training was an essential part of home instruction.

The Exile into which the Jews were driven after the destruction of the first Temple influenced in many ways the character and history of the people; but in none more so than by proving that Judaism might continue to exist outside the Promised Land and deprived of the Temple service. This new conception of the religion directed the energies of the people more and more to the study of the Law, and helped very much to develop and to systematize their educational efforts. During their fifty years of Captivity, the Jews came into close communion with men distinguished by a culture very different from their own, and they brought away with them new ideas and a new knowledge, which exercised a permanent influence on their subsequent intellectual activity.

SECONDARY SCHOOLS.

Between the return of the Jews from Babylon and the destruction of the second Temple, great progress was made in the organization, thruout Palestine, of schools for Jewish youth. The schools first established were intended for children who had received their elementary training in their own homes, and were prepared to enter upon a higher course of instruction. About the year 80 B. C. Simon ben Schetach directed that academies, or, as we should call them, secondary schools, should be established in all large towns, and the organization which he succeeded in effecting anticipated, in many particulars, subsequent efforts of the same kind. Something similar is sketched by John Milton in his essay on a "Free Commonwealth." Milton proposed that every county in the land should be made "a kind of subordinate commonalty or commonwealth," and further, that the people should have "schools and academies at their own choice, wherein their children may be bred up in their own sight to all learning and noble education; not in grammar only, but in all liberal arts and exercises"; and he tells us that such schools "would soon spread much more knowledge and civility, yea religion, thruout all parts of the land." Even more interesting is the thought that a Jewish Rabbi, nearly twenty centuries ago, succeeded in establishing, without opposition, and with the full sympathy of the nation, in all the chief towns of Palestine, high schools not very different in purpose from those which our English poet contemplated.

BUILDING FOR THE FUTURE.

It was gradually found, however, when the opportunities for higher education were attracting numerous aspirants, that a more generous elementary training was needed. Indeed, the conditions would appear to have been then not very different from now, and about a century later, just before the destruction of the Temple, Joshua ben Gamala, a high priest, whose name the Talmud says should always be mentioned with a blessing, appointed teachers in the several provinces and towns, charged with the duty of seeing that all children from six years old and upwards, who could not be taught in their own homes, should receive school instruction.

The crisis in the history of the Jews which followed so closely on the promulgation of this important ordinance withdrew for some time the thoughts of the people from questions of educational reform. The dire necessities of the great siege blocked the way. But it was not long after the people had settled down to the new conditions, under a stricter Roman rule, that the scheme of the great reformer was, so far as circumstances permitted, generally adopted. A passion for the study of the Law seized upon the people. It was shared almost equally by the two great political parties into which they were divided. In different ways the Sadducees and the Pharisees vied with one another in their zeal for the study of the sacred writings and the observance of the Law, interpreting, however, somewhat differently its meaning and significance. From this time the feeling of patriotism which love of country arouses was intensified a hundredfold among the Jews in their pride of belief and in their sense of responsibility, which, as guardians of the Law bound them together as one people.

There were Jews in Palestine who continued to cherish the hope of freeing themselves from the Roman yoke, and the revolt under Bar Cochba and the martyrdom of Akiba testify to the strength of this desire. But others, with almost prophetic vision, foresaw the dispersion of the race, and to their efforts is undoubtedly due the survival of Judaism. It may be truly said that the Jewish School grew up on the ruins of the Temple. It became the means of preserving the national existence. Its aim transcended the ordinary purposes of education. Its object was not so much the care and instruction of the children as the preservation of the nation. The training of students was a means to that end. But the end was national rather than individual. The School was the sole means left to a proud people of maintaining their existence, of holding on to their inheritance. What compulsory military service became later on to other nations, compulsory school attendance was to the Jews. In the war which they waged against ignorance and indifference, the School was their fortress. In the field of learning, which they cultivated with the same patience and patriotism as they had displayed in the defence of their citadel, the School was their national emblem. It is only by realizing how the survival of the race came to be identified with the preservation and observance of the Law, and how the study of the Law was essential to its interpretation, that we can understand the devotion of a people, nearly two thousand years ago, to school work in all its seemingly uninteresting details, and the reverential regard and esteem in which the school teacher was held.

An effort of imagination is necessary in order that we may grasp the inner meaning of many of the sayings of Talmudic scholars, and appreciate the spirit that dictated them. We read, for instance, that several learned men were commissioned to visit different parts of Palestine and to establish schools where needed. Having entered a town where no school existed, they inquired for the guardians or protectors of the city. When the civic councillors were brought before them, they said, "These are not the protectors of the town." "Who are they then?" asked the citizens, and the reply they received was, "The protectors of the town are the teachers of the children."

A celebrated teacher, Rabbi ben Jochai, said, "When you see that towns in Palestine have fallen from their status, know that they have failed to support the scribes and school teachers." The law as to the appointment of teachers in a town was very drastic. By a decree of the Patriarch Judah the Second, "the town which refused to appoint a teacher for the children was to be destroyed."

It is significant that when the fall of Jerusalem was imminent, and rebellion was rampant within its walls, when the zealots who preached resistance *à outrance* guarded the exits, and put to death all who spoke of surrender, Rabbi Jochanan ben Zaccai, the most renowned teacher of his time, persuaded his disciples to carry him in his coffin, as tho dead, to the camp of Titus. With difficulty, he was conveyed thru the zealously-guarded gates; but he succeeded in escaping, and when brought before the Roman general he made a request which appeared so simple, so much in harmony with his well-known character, that it was at once granted. He asked only that he might be permitted to establish a school at Jamnia, and there pursue his studies with a few of his chosen disciples. The request was granted, but Titus could not have foreseen that, in acceding to the Rabbi's wish, he had really allowed the garrison to depart with all the honors of war, carrying with them their arms and ammunition. Yet so it was. For he had permitted the actual embodiment of Jewish learning to re-establish itself in a new center. The Temple and all that Jerusalem represented were, in fact, nothing more than the shell of Judaism. The Law went forth to Jamnia, to be there preserved, and to be thence spread to all parts of the civilized world.

It was a common belief during the centuries that immediately followed the fall of Jerusalem that the city was destroyed because the schools had been closed, and it was subsequently held that the instruction of children must not be interrupted, even for the rebuilding of the Temple. It is distinctly stated in the Talmud that it was not permitted to live in a town where there was neither teacher nor school. Nearly nineteen centuries ago, Josephus wrote, "Our principal care of all is this, to educate our children well." The Law ordains "that the very beginning of our education shall be directed to sobriety. It also commands us to bring up our children in learning, and to exercise them in the Laws and to make them acquainted with the acts of their predecessors, in order that, thru imitation of them, they may be nourished up in the Laws from infancy, and may neither transgress them nor have any pretence for ignorance of them." One of the best known sayings of the Talmud, full of deep meaning and indicating the keenest possible appreciation of the value of education, attributed to Rabbi Eliezer ben Shamna, is, "By the breath from the mouth of school children the world is sustained." It was he, too, who is said to have interpreted the words of the Psalmist, "Touch not my anointed," as referring to school children, and the words, "Do not offend my prophets," to their teachers.

GREEK AND JEWISH TEACHERS.

The position occupied by school teachers in Talmudic times is in striking contrast to their status in the days of ancient Greece or Rome. Professor Mahaffy, writing on old Greek education, says: "The Greek schoolmaster, at least of elementary schools, was not generally in high repute, . . . and his calling was not such as to give him either dignity or self-respect." And he quotes from a passage in Demosthenes' *De Corona*: "But you, worthy man, who despise others, compared with yourself, now compare with mine your own lot, which consigned you to grow up from boyhood in the greatest need, when you helped your father to attend in the school, preparing the ink, cleaning the benches, sweeping out the schoolroom, and so taking the rank of a slave, and not of a free boy." It was not to slaves, but to the choice and master spirits among the people, that the training of Jewish children was entrusted. Respect for the teacher was inculcated as even a higher duty than filial piety. "If both father and teacher are threatened, the latter," we are told, "should be first protected." This reverence for the teacher was only the necessary corollary of the sanctification of learning. Nowadays the whole civilized world is beginning to grasp the fact that the material prosperity of a people depends upon the extent and standard of their educational equipment. We are told that it was the schoolmaster who gained for Prussia the victories by which the Empire of Germany was established; and certainly no one will question the fact that we must look to the schoolmaster for the remarkable successes, not only in war, but in all the arts of peace, which have won for Japan a front place among the civilized nations of the world. History, however, shows nothing more suggestive than the fact that the people who gave to the world the Book should have shown thruout the whole of their national existence, and long surviving it, a love of learning in all its branches and the keenest desire to extend it.

HONORS BESTOWED ON THE TEACHERS.

The aim of education among the Jews was national rather than individual. They believed that in the success of their schools lay all hope of preserving and promoting the study of the Law, which was their inheritance, and of thus fulfiling the purpose of their existence. "Children are born," says Erasmus, "for the State and for God," a doctrine as old as Plato, but in no country were its consequences so unreservedly accepted as in Palestine. Nothing is more characteristic of the Jews than their devotion to study, but very little thought was given to what we are always being told should be the practical results of school training. The function of the schools was not to teach what might be even indirectly helpful in the pursuit of trade or commerce, or in fitting men "to perform justly, skilfully, and magnanimously all the offices, both private and public, of peace and war." The aim of education was rather what Milton describes as the true end of learning—"to know God aright, and out of that knowledge to love Him, to imitate

Him, to be like Him." The Jews, believing that their national existence could be preserved only thru knowledge of the Law, regarded learning as an end in itself. There was no thought, as now, of the application of knowledge to this or that particular pursuit. There was no distinction between pure and applied science. There were no schools of commerce, and technology was unknown. The Law was studied for its own sake. The quest for knowledge was a religious duty and its possession was the highest good.

As a consequence, the honors, which in all countries have been lavished on the soldier, as the emblem and instrument of national defence, were bestowed, in Palestine, on the teacher. The analogy goes further; for whilst the soldier in all countries is generally ill-paid, content with the honor and glory which he may hope to achieve, and the prestige of his position, the teacher in Palestine was content to be unpaid. The recompense of his work was its result. We find, therefore, that the Rabbis of old were engaged in all kinds of handicraft. One was a mason, another a carpenter. Hillel was a hewer of wood, and so on. And, in order that the career of a teacher might be open to all, it was incumbent on every parent to teach his child a trade. Manual labor was therefore dignified. "Great is the virtue of handwork," says the Talmud; "it honoreth those who devote themselves to it," a sentiment the value of which our schools are only now beginning to appreciate. Maimonides, writing on the subject in the twelfth century, says: "We do not find anywhere a Rabbi complaining that his contemporaries have bestowed upon him no possessions. They set their entire trust in God and in the Law, thru which alone man can attain to happiness. They refuse to accept any gift, for by so doing it might be thought that the study and teaching of the Law was a practice by means of which man gained a living." It is recorded in more than one instance that a wife voluntarily separated herself from her husband, who, late in life, desired to take up the teacher's calling in order that he might apply himself heart and soul to learning, rejoining him only when he had become a Rabbi.

THE EDUCATIONAL IDEAL.

That learning was an end in itself, to be pursued without any thought of ulterior advancement, was the ideal held up to the Jewish people. "Make not the study of the Law the means of self-aggrandizement," says Rabbi Zadok; "neither make it a crown to shine with, nor a spade to dig with." There is another saying which bids one "study the law, even when not for its own sake, for, be the object what it may, you will come to study it for its own sake"—a wise and pithy saying, constantly illustrated in our own schools, when a man takes up a study as a bread-and-butter pursuit, and is so attracted by it that he becomes an independent seeker after truth.

The loftiness of this ideal is heightened when we remember that it was thru learning only that one could aspire to a seat in the Sanhedrin, which was the governing body of the people, and that to be admitted a member of that body was the worthy ambition of every scholar. The title Rabbi, which means only "Master," was the equivalent of our "doctorate." It was conferred only after many years of patient study, and carried with it, like the title *artium magister*, centuries later, the privilege of teaching and of founding a school. The fame of any celebrated teacher spread then, as in the early part of the Middle Ages, and many a Rabbi, like Abelard, later on, attracted students in great numbers from very distant places. There was no necessary connection between the Rabbi and the priest. On the contrary, the Rabbis were often in conflict with the political influence of the priesthood. The priests were essentially servants of the Temple. In the preservation of the Temple services their interests and hopes were centered. Not so the Rabbis. Their outlook was wider. Their citadel was the Law, which, as time went on, they protected with hedges as defensive as the wire entanglements of modern strategists. At the same time they prepared the way for the permanent survival of Judaism, and for rendering its existence independent of the possession of Palestine, or the restoration of the Temple. This was the great work which their schools accomplished.

THE JEWISH SYSTEM OF PEDAGOGY.

Something must now be said of Jewish pedagogy, of the subjects of instruction, and of the methods of teaching in these old schools. The Hebrew Scriptures and the Talmud, consisting of the Mischna or Oral Law and its interpretation were the common subjects of school instruction. The substance of the Talmud, which during this period was unwritten and constantly gathering to itself new matter, was the subject of study in the Jewish academies or high schools. It occupied the place of the classics in the schools of medieval Europe, and, indeed, in schools of very recent times.

The obligatory school age commenced at six. Many sayings have come down to us showing the importance which was attached to early training. "The quest of knowledge in old age is like drawing on sand, in youth like engraving on stone"; and elsewhere: "If you have not desired knowledge when young, how can you attain to it in after-life?" These and many similar sayings found in the Talmud express the common belief of the people in those far-off days. In the elementary schools a teacher was appointed to every twenty-five pupils, the regulation number of a class. If it was found necessary to include forty children, an assistant teacher was added. The morning and part of the evening were devoted to instruction. Under no circumstances, not even on occasions of great national sorrow, might the school be closed. There were holidays, but they were few. Even on the Sabbath the school was open, but the teaching was restricted to repetition. No new subject was begun. Punctuality in attendance was enforced. Raschi, the great commentator, quotes an old rule: "Give your pupils a fixed time for coming and leaving." Thoroness was the great principle on which teachers insisted. The old rule, *Non multa sed multum*, was anticipated by the Rabbins. "Better a little with attention than much superficially." "A single subject mastered with difficulty is better than a hundred hastily acquired." At the same time teachers recognized the value of "short cuts" when they were equally efficient. "In teaching, always choose the shorter road."

The secret of discipline was interest: the interest aroused in the study, and, above all, the interest of parents in what their children were learning. The sympathy of the parents with the efforts of the schoolmaster made his task a pleasure, and instruction easy. Learning by heart formed a large part of the teaching both in the elementary and higher schools. That was necessarily so when the instruction was mainly oral. At the same time reading was generally taught, and the Hebrew language was systematically studied. Many mnemonic rules are given in the Talmud for assisting the memory, but constant repetition was considered the surest method, and in this respect the teaching was very similar to that of comparatively modern times. The Latin rule, *Repetitio mater est studiorum*, is otherwise figuratively expressed in the saying: "He who studies without repeating is like the man who sows and does not reap." And elsewhere: "He who repeats a matter a hundred times does not understand it as well as he who repeats it a hundred and one times." In an age when there were no publishers, and consequently no text-books, it was necessary that the pupil should first fix in his memory the subject of the lesson and then seek to understand it. Hence we find the saying, "First know the matter and then learn to explain it," an analytical principle of teaching of wider application than it probably received in the Talmudic schools. "Knowledge is gained," says the Talmud, "by help of the memory." But from a comparatively early age the pupil was trained in methods of inquiry, and was encouraged to ask questions. The fault that prevailed for so many years in modern colleges, where the teacher talked and the student listened, was unknown in Talmudic seminaries. The instruction was much more lively. There was a constant and brisk interchange of thought between teacher and pupil.

Writing on the subject of these schools in 1885, Strassburger, a German author, tells us that "the method of instruction was strictly *heuristic.*" He may not have used the word exactly as it is now applied to the teaching of elementary science, but he did mean that the pupil was expected to elicit by pertinent questions and investigation the meaning of what was to him obscure. "The bashful pupil learns nothing," we are told in the Talmud, and it was expressly forbidden to appear to understand any matter the meaning of which was not clear to him. Even if his instructor grew impatient, he was told that he should excuse himself by saying: "I ask for further explanation because my powers of apprehension are weak."

Whilst the habit of inquiry was thus generally encouraged and cultivated, modesty as to his own knowledge and ability, and respect for that of his teacher, were the two virtues which students were trained to practice. "Teach your tongue to say, I know not," is a trite Talmudic precept; and it is also said, "If you know much, do not pride yourself on your knowledge, for thereto you were created." Children were taught the doctrine that kindly action follows increased intelligence and understanding, and the connection which the Talmud establishes between knowledge and right conduct is sufficiently pronounced to satisfy the most faithful disciple of Herbart. Hillel goes so far as to say, "A boor cannot be sin-fearing, nor a rustic a saint," and the penalty of confirmed sinfulness was exclusion from the schools. "You shall not instruct," says the Talmud, "a worthless pupil."

QUALIFICATIONS OF THE TEACHER.

Under such a system very high qualifications were required from the teachers. The fittest age for a teacher was much discussed, and as a general rule no one was considered qualified to teach under forty years of age. To this rule, however, there were many and frequent exceptions, and a certain Rabbi counselled, "Do not look at the vessel, but at its contents, for we find new vessels with old wine, and old vessels with new wine."

As morality and learning were closely associated in old Jewish culture, the moral attributes of the teacher were the qualifications which were first considered. It was only the pure-minded and the clean-handed who could be entrusted with the sacred duty of teaching the young. The Talmud gives a very long list of qualifications which the teacher should possess, very few of which our examination system would be able to test. He should be slow to anger, courteous in his language, free from conceit, loving criticism, and not exalted by his knowledge, sedate in study, widely observant, eager to extend knowledge and to make others learn; above all, he must be God-fearing and free from worldly ambition. There were no training colleges in those days; the teacher learned the art of teaching by studying the methods of his master.

THE SCHOOLS.

The school buildings were generally outside the town, away from the busy hum of men. During the lesson the children sat on the floor in a half-circle, and the teacher on a raised seat in the center. The school-house and synagogue were often in the same building, and, even to the present day, the house of prayer is known in Germany as *Schule*, and in Italy as *Scuola*. Indeed, in olden times the training of the home, of the school, and of the synagogue were one and the same. The distinction between religious and secular instruction was unknown. In the impressive words of a German writer: "As the child went forth each morning from his father's house into the synagogue and thence into the seminary, he went from one house of God into another, and one Book and one Spirit accompanied him, whether at home, in school, or in the house of prayer."

COURSES OF STUDY.

In the higher schools or academies, the voluminous literature known as Talmud embraced the various subjects of instruction. These, however, were not studied separately according to any prearranged syllabus, but incidentally as they arose, and as they were required to elucidate the Biblical text or the traditional precept. The most superficial acquaintance with the contents of this great work, in the form in which we now have it, shows how numerous were the avenues it opened up to the study of the science and philosophy of the day. The discussions which occupy a large part of the work traverse vast fields of inquiry, including much of what was then known of physiology and medicine, of astronomy, law, history, and grammar. The search into the inner meaning of every line and word in the Biblical writings, the investigation into the why and wherefore of every legal enactment, and the honest endeavor to adapt the written and traditional ordinances to the varying requirements of life, led the patient student to follow any track that promised wider knowledge, and enabled him, in many cases, to strike out new paths as the result of independent thought and research. "It is impossible," says the Talmud, "to frequent the academy without discovering something new"—a sentence showing that it was the duty of the teachers not only to impart acquired knowledge, but also to stimulate inquiry into new regions of thought. The two Buxtorfs, father and son, who are accounted among the most learned of Christian writers on the Talmud, bear testimony to the width and variety of its contents. "The Talmud," we are told, "is in itself a great body of learning, and contains many-sided references to all branches of science"; and the younger Buxtorf, in the introduction to his well-known Lexicon, speaks of the "legal, medical, ethical, political, and astronomical dissertations" which are found in its pages.

If we consider for a moment the varied and intricate questions which necessarily arose in deducing from the Bible and the Mischna a practical code of ordinances to govern every detail in human life, we shall realize how many so-called secular subjects of study were called into requisition in the arguments for and against any judgment or decision. Questions of anatomy were frequent subjects of inquiry in the Talmudic schools. Whether the hare, for instance, can be classed among ruminants was a matter on which difference of opinion prevailed. In the Bible it is so classified, and on that ground alone would have been considered clean and edible. But, as the hoof is undivided, it was forbidden as an article of food. When the Bible was translated into Greek the newer learning went to show that the hare *did not* chew the cud, and the Septuagint Jewish writers gave both reasons for its being forbidden and boldly inserted the negative, thus altering the original text.* If we consider the searching character of the investigation which alone could have justified such an alteration we shall realize how extended was the field of knowledge in which the old Jewish teachers worked.

Then, again, the settling of the calendar with a view to the accurate determination of the dates of the festivals and feasts necessitated a wide acquaintance with astronomical science. According to the Talmud, the Israelite who aspired to be ranked among the wise was bound to study mathematics and astronomy. It was said of one of the Rabbis that "the paths of the heavenly bodies were as familiar to him as the streets of his native town." "Astronomy and Geometry," according to the Mischna, "are the ornaments of wisdom." The Talmud consists largely of dissertations on historical, legal, and scientific questions, and these formed the subject matter of discussions in the schools. The method of training was in the highest degree disciplinary. It served to sharpen the wits and to develop the intelligence of the students in a manner and to a degree that have never been surpassed. It had many of the merits of the Socratic method, but dealt with matters of wider interest to the welfare of the community. The subjects of inquiry led the student into fields of investigation and research, which included the entire area of the science of the day. It embraced Persian, Greek, and Roman lore. For a period of more than 500 years, the Talmudists were prominent among the most earnest searchers after truth; and it was unquestionably due to the collateral study involved in the interpretation of difficult passages in the written and oral Law that their descendants occupied so distinguished a position among the philosophers and the physicians of the early Middle Ages.

---

*Lev. XI, 6.

The tendency of modern educational thought and policy in certain directions is not so far removed from the ideals of the old Talmudic fathers. Year by year, and very rapidly in the last few years, the belief is growing and maturing that the salvation of a people is their school training. For the successful discharge of every duty in life—for the attainment of all those ends which to the modern world are dear—education has come to be regarded not only as necessary but indispensable. What kind of education is best adapted to different purposes, to the making of men and women, is a question—or is a consideration involving questions, for they are many—of the greatest concern and of the deepest interest. But every one is agreed that the training of the young is a matter of national importance, demanding the active thought, the financial aid, and the careful supervision of the State. With this recognition of the national aims of education, has grown up, or is growing up, a truer appreciation of the position and authority of the teacher. Slowly but certainly we are coming to regard the schools of the people as the nation's strongholds, and to see in their efficiency the country's real strength and civilizing power. This ideal was ever present to the minds of the Jewish sages whose wisdom is recorded in the pages of the Talmud.

Perhaps, too, we may come in time to recognize as they did—and many present conflicts will then have ceased—that all knowledge is divine, that science and religion are one, or, as the Talmud tersely expresses it: "Truth is the seal of God."

PHILIP MAGNUS, in "Nineteenth Century and After."

Some people seem to have a special faculty for discovering good traits in others. This faculty is not necessarily inborn. It can be acquired and is acquired by unceasing practice.

The College Man as Leader in the World's Work *

IN the twentieth century the college man is, more than ever before, the leader of the world. Mind leads the world; mind ultimately is the ruler of the world. That mind leads the world which is not simply developed into maximum intellectual perfection; it is that mind which, perfected and strengthened and given symmetry and vigor, is also made most thoroly at one with the world. It is not enough that the man shall be a great scholar, or the greatest of scholars; nor is it enough that he shall represent the highest culture and possess the most vigorous brain; nor can learning, even learning united with wisdom and culture, however magnificent the whole, in union give leadership in this world.

A primary requisite of leadership is close and strong connection with the great world to be led. This union being assured the true leader gains and holds his leadership by the exercise in unrivaled power and with unequaled tact and judgment of those talents which have been re-enforced by the no less indispensable learning and culture and wisdom; these united confer leadership. Ultimately, also, it must be remembered that the greatest mind can never lead if apart from the world and out of touch with those who are to be led. Any man of good sense and rich in humanity, even tho unlearned and without extraordinary genius, will sooner acquire leadership than the wisest and greatest man of genius the world at the time possesses, lacking this firm hold upon those who should follow.

He who would lead must have this compound constitution and must acquire the useful forms of learning and the hardly less valuable forms of culture, for such purposes, and he must cultivate that wisdom and tact and those virile qualities which are all essential to perfect success. He who would lead must

---

*A Commencement address to the students of Case School of Applied Science.

be prepared to follow, each in his proper place, and there to be content while most efficient.

A century ago there was but one recognized form and method of education—what is now termed the classical—composed of studies of the ancient languages and literatures, comparatively lean and narrow as they are; the elementary mathematics, to the extent now attained in the secondary schools; a homeopathic dose of physics and chemistry; a little French, and a somewhat larger, if less palatable, dose of "philosophy." The century has been one of extension, broadening, elevation, diversification, and systematization of education, and of the incorporation into the curriculum of the modern languages and literatures; the modern physical sciences experimentally developed; the arts, fine and useful, so far as capable of scientific treatment; and the principles and practice of the professional schools, including the latest and most strictly taught of the group, the school of engineering and its associate professional schools of every sort. The whole evolution of the century has been consistent in every field, and technical, "practical," education is simply one of the elements of a complete and perfect evolution of modern life.

The world now acknowledges its need of the college man, and my own letter files are crowded with calls for competent men far in excess of the number available; while the number seeking even improved situations is small, and I know of none out of work, unless ill. At the top, the space is enlarging, tho it is always ample for tiptop men. Formerly positions paying $5,000 were rare, now the college bred man is coming forward when $10,000 positions are seeking, and failing to find, the men who are competent to fill them satisfactorily. Generals are, comparatively, still more rare than ever, even tho training for generalship is going on at an unprecedented rate and the opportunities are multiplying for great men and good men and capable men as never before.

The leaders of even the world of business are educated men, as a rule. Morgan, the leader of finance to-day, is a college man, a graduate of Göttingen. None of this class of men is likely to advocate the endeavor of a people to become a crowd of wealthy boors rather than a nation of gentlemen, scholars, and wise men. The great financiers of the country are now usually college men; the heads of railways are often of that class, even tho they have begun at the foot of the ladder; all distinctively learned men are of that class; our greatest men in literature, science, and art are practically all educated and cultivated men; the inventors of the telegraph and the telephone were both educated, and in fact learned men; all the great men in medicine and surgery are college men; all the great lawyers and every great jurist on the bench is of the same rating. We make our Presidents of learned men, and usually of college men. The same is true of the members of their Cabinets, of the judges on the Supreme Court Bench, of the chiefs of bureaus, and practically all men in highly responsible positions. Our foreign ministers and ambassadors, where reflecting special credit upon their country, like Lowell and White and Hay and Choate, have been not only college men, but distinguished for their attainments in the highest fields of academic learning.

In engineering no man will in the coming generation have even an average chance of success professionally without uniting to the essentials characteristic of a "general of industry" in generations just past the now hardly less essential requisites furnished him by systematic instruction in the sciences underlying his art and the applied sciences, and the scientific methods fundamental to his profession. Now and then a man may get on, and even possibly attain a high or leading rank, but it will be at enormous sacrifices of strength, energy, and physical vigor; and when he reaches his goal it will prove that he has gathered "apples of Sodom" for a "Barmecide feast," and he will mourn, as have so many before him, the lack of that which makes a life of independence and of liberty in expenditure worth having. He will probably, as have so many before him, if his long life of self-seeking has not poisoned his character and killed all his sympathies, seek the next best thing and try to help other later youth of ambition and energy secure what he so greatly needs.

While it is largely true, as has been asserted by more than one such man—like the fox in the fable seeking to justify his amputated tail—that the prizes of our time and our country are now being often grasped by the uncultivated and unlearned man, the fact is mainly due to the circumstances that these men of to-day are mainly uneducated thru the misfortune that they were born too soon, and before higher education had come to be general and suitable to the conditions of modern life. In another generation this situation will be modified in the direction of giving these opportunities to educated men in vastly larger proportion. Meantime, every successful man lacking education, learning, and culture recognizes to-day either that he has also lacked wisdom if deliberately declining to secure an education when young, or that he has been extremely unfortunate if deprived of that privilege by force of circumstances. Not a man of them but envies his poorest acquaintance who possesses the essentials of content in a life outside the narrowing and engrossing pursuits of a business life. He lacks preparation for precisely what all his energies have been directed toward—making suitable provisions for a profitable and happy life on a higher plane.

Visiting the famous Homestead Steel Works some years ago, the gentleman who was taking me thru the mills pointed out a strong, good-looking, and evidently masterful man standing on the top of a set of heavy roll housings in the armor plate mills and remarked: "That man is paid more than your college president," and indicating another who was directing work not far away, and who evidently belonged to the same class—the most intelligent of mechanics—he said: "That man is getting pay exceeding that of any of your professors." Both men were soiled and grimy, dressed in overalls, and, as occasion arose, ready to take a hand in the work; and to the unaccustomed eye of the casual visitor they would seem to be day workmen, but one familiar with such scenes would instantly detect the bearing and manner of the born general, prepared thru natural force of character to command. They were men from the ranks—active, ambitious, good workmen; strong, proud, yet pleasant in their intercourse with all about them, and perfectly well prepared for their places by knowledge, experience, and natural fitness.

Why were these skilled mechanics paid the salaries of college presidents and of college professors? The answer is simple: They could make themselves so useful and so necessary in the business that the proprietors could make money by employing them, large as was their compensation. Precisely the same principle operates when the presidents of great corporations receive tens of thousands of dollars as salary, or fifty thousand, or a hundred thousand. The directors of such enterprises do not give away a hundred thousand dollars simply out of kindness; their enormous interests compel them to seek out the one fittest man in all the country, the man who is sought by perhaps many other great enterprises as a guide and director, to make those interests safe; identifying him, him they must have at his own price. Similarly, the great leaders in the industries take a few millions of the many which they earn for the people; it is quite fair.

The unlearned and uneducated man will always have his place in this world of ours; but yet he will not hereafter have such opportunities, however great his natural abilities, as he has had in the past. It is sometimes—not very often—said by "successful" men of this class that the boy who grows up without learning, and who gives his boyhood's years to unskilled labor in shops and factories and mills may hope for a larger success than he who is taught sound learning, or given a "liberal and practical" education. They speak without foresight or forethought. The world of the coming generations is to be a very different world from that of their fathers. Education is permeating the whole body politic, and rapidly becoming distributed to all ranks in life. For one poor man's son in college a generation ago there are many to-day, and for one a hundred years ago there are now the many multiplied, and the man who would succeed, in whatever rank of business life, in whatever profession, must hereafter meet in competition men who, in addition to all the native talent which he posseses, and all the energy, vigor, and ambition which he may display, will have a brain stored with knowledge and scientifically cultivated and trained, and thus far better equipped than formerly for successful struggles with the world, and for seizing the opportunities, and meeting the responsibilities of the highest positions for which all may strive.

This is, in fact, admitted, and it is often asserted by the most wise and able and successful of this very class; and Andrew Carnegie is founding libraries, is promoting technical education, and is organizing a technical institution as the noblest contribution of which he can conceive for the benefit of those workingmen to whom he owes so much and indebtedness to whom he so freely acknowledges. His great pupil, Mr. Schwab, while encouraging the penniless boy to begin bravely at the bottom and to work hopefully toward the top, still more emphatically declares his respect for learning, and his high estimate of the desirability of more general education, by himself organizing a trade school for Pittsburg. A very large part of the work of founding schools and colleges and universities, and every form of higher, as well as primary education, outside the common school system of the United States, has been already done, and is being performed more and more generally and liberally and generously by this very class of men. Rockefeller builds up Chicago University; Ezra Cornell, uneducated and once in poverty, nevertheless gives all his surplus, once secured, to found a university in which "any man may find instruction in any study," and interests himself most of all in providing for the poor man's son; Hiram Sibley, owing his millions to the same sturdy, manly, and vigorous spirit, fighting his way from the bottom to the top, finds his noblest pleasure in organizing a college in which the education of the oung mechanic and engineer may be carried up into the ealms of applied science and the highest departments of proessional work.

Lawrence and Sheffield, Case and Rose, and Rensselaer, and the numerous other great philanthropists who have founded schools and colleges, even the most thoroly educated and most cultured of all among them, it must be remembered, had no such educational opportunities as are offered the young men and women of to-day. The coming generation is to be comparatively highly educated people, and the man who is to succeed in dealing with the new, the modern, must, more than ever before, have something of that culture. Highest success will only come of education and culture, combined with a thoro scientific, professional preparation for the most advanced positions in the industrial or professional organization. In the past generations few men were given or could be given, even the academic education of the time; to-day almost any man who has the wish and a real determination to succeed may secure a good education of the kind which he may most desire. In the last generation the competition for the high places and grand prizes, outside the then so-called learned professions, occurred between uneducated men, as a rule; in the generations now coming forward that competition will be between men who have not only the brain and the native talent, but also, and superadded to all that the older type of man possessed, that kind of systematic training which makes the intellectual as well as the physical gymnast, that scientific instruction which provides learning that finds its peculiar use in the industrial departments of life, out of which come, directly or indirectly, all great fortunes.

This is already coming into view as the characteristic change of the time in the making of the personality of the notable man of the time. To-day the educated men are taking their places in the world, and their chances of success are, and have long been, vastly greater, in most directions, than those of the uneducated. The proportion of educated men taking their places in history is already fifty times as great as of the uneducated;

the next generation will see practically all great prizes in their hands. It is a splendid evidence of the progress of the world that he who chooses may enter the ranks of the educated, and he who will may make himself a man of culture.

As for opportunity to gain the prizes of common life, "what more can the college man ask than he now receives?" One man in a hundred to-day obtains a college diploma; these men supply one-third the members of Congress, one-half and more of our Presidents and Vice-Presidents, two-thirds of our Supreme Court justices, seven-eighths of the Chief Justices. In all ranks, in all great places, the names of immortals are in the proportion of fifty to 1 favoring the college man. If, as asserted by some writers of late, as I however, think mistakenly, the proportion of college men to population is falling off, then so much the greater will be the opportunities of the wise. If, as presumably is the fact, college men are more and more pursuing professional studies, that means the elevation of the professions to a higher level, and still larger opportunities for the college man fitted to lead. To-day, the college man has thirty times as large an opportunity to succeed in public life as the non-graduate, fifty times as large an opportunity to reach the Cabinet, the Vice-Presidency, or the President's chair, sixty or seventy times as large a probability of success in striving for the Supreme Court, eighty or ninety times as favorable chances of becoming Chief Justice.

In the great industries there are probably a still larger proportion of positions which, without the scientific learning and systematic training in applied sciences given by the engineering schools, the most ambitious of men and the most talented could not attain, or, attaining, could not hold. The coming century will see these opportunities more and more the prize of intellect suitably trained, of mind properly strengthened, of talent precisely outfitted for the task of their acquirement. The college man will come more and more generally to take and to hold one hundred per cent. of the positions assigned the generals in the great army of industry. This is the more probable since, as is asserted by a foreign and unprejudiced observer, "The engineering profession is to-day, upon the whole, the best educated in America."

In all the later centuries until the nineteenth, the college man seeking to unite with learning and culture, with knowledge and wisdom of the sorts approved by the older academicians, that no less noble and still more helpful learning of the sciences and of the arts of industry, joining the academic with the scientific and the professional, has been at a disadvantage among other college men. The end of this discrimination among learnings is now in sight, and one of the most striking signs of the times in this direction is the recent action of the Emperor of Germany and his Government, and of the Emperor of Austria-Hungary, and his officials, in ranking the scientific and the professional schools beside the universities.

The college man is he who, in the days which are now come, when practically every one who wills can secure learning if not wisdom, knowledge if not culture, sees opening before him the largest and most attractive opportunities. Whatever any other man may possess, he has that which permits him to aspire to companionship with, if not leadership of, the greatest and noblest in the land and of the time. Given similar physical vigor, equally strong aspirations, similarly clear and strong intellect, no less refined sense of justice, sympathy, and manly brotherhood with men, it is the college man alone who has the advantage of systematic training of faculties, of most efficient teaching, of scientific knowledge, and of highest learning thru communion with the greatest men and the loftiest minds of the present and of the past, and who may with greatest confidence undertake the leadership of men. It is the college man who is best equipped for generalship in the industrial army, for furthest exploration of unknown fields of science, and for loftiest rise in the philosophical world, and, even with similar elementary experience and training, for greatest success in the lower, but none the less great, world of money makers. The twentieth century man will be the college man in type, and it will be college men, as a rule, who may be expected to go farthest and rise highest, and to do the great deeds of the coming centuries, whether in finance, in the industries, in political life, or in the highest realms of science, and the loftiest worlds of morals and philanthropy.

Shame be to him if, with all his advantages, he permits another to wrest from him that leadership by greater desert, by more perfect fitness. Glory be to him if he do his duty and splendidly, as he may, accomplish his grand task!

The college man is evidently ere long to take charge of our public offices and of the industrial and professional departments, and college men are to find their way into prominent positions as never before; but, fortunately, college men come from all sorts and conditions of people, and it can never be said that this means the organization of a class to dominate other classes, much less the masses. The sons of poor men, as a rule, always have been, and probably always will be able to secure these positions oftener than the sons of rich men, for they have the discipline in early life that the latter usually lack. The process of promotion of the college man is to be one as well of constant redistribution of power among all classes, very much as common experience shows the wealth of the country to be as constantly in process of redistribution. The democracy of intellect and the democracy of influence will be insured by this process in the most desirable of all possible ways. The way is now opening to the college man as never before, and especially the departments of applied science and the industries offer him opportunities beside which those of the college man in the other professions are insignificant.

In another generation the proportion of men, educated and uneducated, who attain success will be vastly changed, and, happily, the number of men who have reached competence or wealth in their vocations and who must still sigh that they can not give of their millions to gain the education which they lack will be, probably, comparatively small—for the ambitious poor boy will much more commonly than now find his way to his triumph by way of the college or the professional school. The number of wealthy men who will esteem it a privilege to help on the work of education and to take part in other great works will undoubtedly also steadily increase until, as we may perhaps hope, the redistribution of surplus wealth may become the pleasure and the recognized duty of all.

The college man, leaving college, goes out into life once more a freshman and with the university of life for his next place of struggle, of aspiration, and of achievement. He enters upon a new training by different methods and thru radically different experiences. He is trained, indeed, but by no sympathetic and systematic teachers. He must find his own way to knowledge and to wisdom, which is greater than knowledge, and must struggle onward and upward with not only little assistance, but even with almost every man's hand against him, and driven at times to raise his hand against every man except the select few whose interests, or whose convictions, coincide with his own, and are opposed by all the world beside. But this is not difficult for the man who knows himself in the right. In all men, it is obvious to the close observer, there exists a fighting instinct which has its use in life, and the joy of contest makes easier the struggles for the intended goal.

Honesty, ability, capacity, and power, supplemented by precisely the right sort of learning, and made available thru systematic training, in every case prove winning quantities. The complete development of the man to a maximum of usefulness in the vocation and the life to which he is by nature best fitted, means progress and ultimate success—provided he can keep himself in training. An essential element of the art of success is that of living long enough, and in a state of high working efficiency. The fact that this is so generally ignored makes the opportunity of the man who never forgets it all the larger.

It is also a fact that it must be admitted that the incapacity, the lack of integrity, the indifference to duty, and the general inefficiency of the average man is one of the elements of the success of the man who does finally succeed. But sad as is the fact, it may fairly be accepted by the man who is at once gentleman and scholar and expert as contributing to his opportunity.

Cornell University. PROF. R. H. THURSTON.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

GRAMMAR.

They are ceasing to be a *folk* of country dwellers It is not only that the greater cities extend themselves with amazing speed, and that many of the mineral areas are becoming so covered with villages as to differ little from cities. There is a general disposition to migrate from rural districts to centers of population, where a brisker life and more amusements can be enjoyed. The change is all the more remarkable because agriculture continues to be prosperous. It has been accelerated by those *applications* of machinery to agricultural work which enable a *farm* to be worked by a smaller staff than was formerly needed. Wherever one travels in the eastern and northern States one sees new towns . . . rising along the lines of railroad and the older towns spreading out.

Roughly speaking—for it is impossible to speak with exactness—America has now not less than fifteen or perhaps even twenty seats of learning fit to be ranked beside the *universities* of Germany, France, and England as respects the completeness of the instruction which they provide and the thoroness at which they aim.

In England nothing is so hard as *to get* money from private persons for any educational purpose. Mr. Carnegie's splendid gift to the universities of Scotland stands almost alone. In America nothing is so easy. There is, indeed, no better indication of the prosperity of the country and of its intelligence than the annual *record* of the endowments bestowed on the universities by successful business men, some of whom have never themselves had more than a common-school education. . . In England nearly every youth belonging to the middle or upper class who takes to business *goes* into a commercial office or a workshop not later than seventeen. In the United States if he graduates at a university, he continues his general liberal education till he is twenty-one or twenty-two. This practical people does not deem these three years lost *time*. . .

Sensible of the difficulty of conveying to my younger readers an idea of the impression that America made on European travelers just after the war, still more sensible of the still greater difficulty of conveying the impression which America now far vaster and more complex makes on the traveler to-day, I attempt no more than to indicate some of the more obvious differences between those days and the present.—*James Bryce.*

[The first nine questions refer to the above selection. In giving a clause include only its unmodified subject and its unmodified predicate.]

1. Select five adverbial clauses and state what each modifies.

2. Select five adjective clauses, exclusive of the first one commencing with *which*, and state what each modifies.

3. Select three participles differing either in classification or in syntax. Give the syntax of each participle selected.

4. Select three infinitives, each having a different use. Give the syntax of each infinitive selected.

5. Give the case and the reason for the case of each of the following: (1) *folk* (line 1), (2) *farm* (line 9), (3) *universities* (line 15), (4) *record* (line 22), (5) *time* (line 30).

6. Give and classify the modifiers of (1) *applications* (line 8), (2) *to get* (line 18), (3) *goes* (line 26).

7. What parts of speech may be used to connect clauses? Select two examples of each kind of connective.

8. Classify adverbs according to meaning and select an example of three of the classes mentioned.

9. Select (1) three intransitive verbs, (2) four transitive verbs in the active voice and three in the passive voice. Give the mode and the tense of each verb selected.

10. Illustrate in a conditional clause the use of the verb *be* in (1) the indicative mode, (2) the subjunctive mode.

ANSWERS.

1. *Agriculture continues*, modifies *is*; (*staff*) *was needed*, modifies *smaller*; *one travels*, modifies *sees*; *he graduates*, modifies *continues*; *he is twenty-one.*

2. *Life and amusements can be enjoyed*, modifies *centers*; *which they provide*, modifies *instruction*; *they aim*, modifies *thoroness*; *who takes*, modifies *youth*; *America made*, modifies *impression.*

3. *Rising*, used adjectively, modifies *towns*; *conveying*, used like a noun, object of *of*; *bestowed*, used adjectively, modifies *endowments.*

4. *To be*, object of *ceasing*; *to differ*, used adverbially, modifies *so*; *to migrate*, used adjectively, modifies *disposition.*

5. (1) Predicate nominative; (2) objective case, subject of *to be worked*; (3) objective case, object of *besides*; (4) nominative case, subject of *is* (understood); (5) objective complement after *deem.*

6. (1) *Those*, pronominal adjective; *of machinery* and *to work*, prepositional phrases; *which enable*, adjective clause. (2) *Money*, object; *from persons*, *for purpose*, prepositional phrases. (3) *In England*, *into office* or *workshop*, prepositional phrases, *not later*, adverb.

7. Conjunctions, *and*, *as*. Conjunctive adverbs, *where*, *wherever*. Relative pronouns, *which*, *who*.

8. Time, *to-day*; negation *not;* degree, *so*.

9. (1) *Are ceasing*, indicative present; *are becoming*, indicative present; *to differ*, infinitive present.

10. (1) If he was there, it is well; (2) If I were home, I would give it to you.

ENGLISH COMPOSITION.

1. State the main points of difference between business letters and letters of friendship in respect to (1) salutation and complimentary close, (2) style of writing. Write the salutation and the complimentary close of (1) a business letter addressed to the Superintendent of the High School, (2) a friendly letter addressed to your cousin.

2. Substitute a single word for each of the italicized expressions: (1) I came *of my own free will*, (2) The *old soldiers* lead the parade, (3) We resumed our journey after *the sun had gone down*, (4) They made an attack *that could not be resisted*, (5) Several *people who had come from America* witnessed the eruption of Vesuvius.

3. Separate the following sentence into at least three shorter sentences: Notwithstanding the urgent entreaties of his friends that he should abandon the enterprise, Columbus, the discoverer of America, set sail from Palos on Friday, the 3d of August, 1492, and, tho his sailors despaired of ever reaching land and urged him during the last weeks of the voyage to return with them to Spain, he landed on one of the West India islands on the 12th of October after a difficult and stormy voyage.

4. Mention the rhetorical quality violated in each of the following sentences and rewrite each sentence correctly: (1) He is a person whom I am delighted to be acquainted with, (2) A farmer told his neighbor that his cattle were in his corn, (3) They returned back to the city from which they came, (4) Tell her, if she is at home, I will see her, (5) The leaves, falling so quietly and gently, fall in the fall.

5. Classify the following sentence as periodic or loose and rewrite in the opposite forms: During the long, weary march thru the country that lies between the two rivers, the insurgents were constantly forced to fight.

6. Write a topical outline for a composition of at least five paragraphs on one of the following topics: (1) A County Fair, (2) Camping Out, (3) The Story of Proserpina, or the Pomegranate Seeds, (4) The Story of Evangeline.

7-8. Answer either *a* or *b*; pay particular attention to paragraphing and punctuation.

(*a*) An old tree which has been a landmark for many years on a certain village street is to be cut down, as it is in the way of improvements that are to be made. Two girls, passing the tree, comment on the matter, one favoring the removal of the tree, the other opposing it Relate the conversation of the girls.

(*b*) Two teachers are discussing the value of manual training for eighth grade pupils, one arguing for it, the other arguing against it. Give their conversation.

9. Distinguish in meaning the words in each of the following groups: (1) business, occupation, trade, profession, employment; (2) pay. salary, wages; (3) journey, tour, voyage, excursion.

10. Write the following sentence three times, varying the order of words in each case: *The happy days sped quickly in Atri.* What idea is most emphatic in each sentence?

ANSWERS.

1. (1) The salutation and complimentary close of business letters should be formal; as, "Dear Sir" and "Yours truly," while in letters of friendship they should be affectionate and varied according to the relations of the correspondents. (2) Business letters should be as concise as clearness will permit, while letters of friendship should be informal, and, in general, one should write as he would speak to the person addressed.

(1) Superintendent of High school,
DEAR SIR:
Yours truly,

(2) DEAR COUSIN:
Yours lovingly,

2. (1) I came voluntarily, (2) The veterans lead the parade, (3) We resumed the journey after sunset, (4) They made an irresistible attack, (5) Several Americans witnessed the eruption of Vesuvius.

3. (1) Notwithstanding the urgent entreaties of his friends that he should abandon the enterprise, Columbus, the discoverer of America, set sail from Palos on Friday, the 3d of August, 1492.

(2) His sailors despaired of ever reaching land, and urged him during the last weeks of the voyage to return with them to Spain.

(3) He landed on one of the West India islands on the 12th of October after a difficult and stormy voyage.

4. (1) Strength; He is a person with whom I am delighted; (2) Clearness; A farmer said to his neighbor, "Your cows are in your corn." (3) Tautology; They returned to the city; (4) Clearness; If she is at home, tell her that I will see her; (5) Euphony; The leaves fall so quietly and gently in autumn.

5. Periodic. The insurgents were constantly forced to fight during the long, weary march thru the country that lies between the two rivers.

6-8. Answers will vary.

9. (1) *Business* is that which occupies one's thoughts, time, and attention; *occupation* refers to the chief business of one's life; *trade* is the business of exchanging commodities; *profession* is the occupation, not agricultural, mechanical, or the like, that one follows; *employment* is that which engages one's time or attention. (2) *Pay* is money paid for service; *salary* is a periodical allowance made to a person for his services; *wages* is the remuneration of hired labor. (3) A *journey* is a period of travel; a *tour* is a journey of extent; *voyage* is a journey by water; *excursion* is a pleasure journey.

10. (1) Quickly sped the happy days in Atri. This form gives emphasis to the fact that the days passed quickly. (2) In Atri the happy days sped quickly. This form emphasizes the place where. (3) Did the happy days speed quickly in Atri? This form asks a question.

SCHOOL LAW.

1. Name three different kinds of teachers' certificates and tell how long each is valid.

2. Give the term of office and the minimum salary of a school commissioner. Give one of his important duties connected with (1) school officers, (2) teachers, (3) teachers' institutes.

3. What is (1) the date of the beginning of the school year, (2) the date of the annual school meeting in a common school district?

4. Give the three general qualifications of voters at an annual school meeting.

5. By whom, and for what reason may a school-house in a school district be condemned?

6. A common school district having an assessed valuation of $190,000, employs three teachers; name its different quotas and find their total amount.

7. How are the attendance officers chosen for (1) cities, (2) union free school districts, (3) common school districts outside of incorporated villages?

8. In a common school district having no treasurer, on whom and by whom are orders drawn for (1) money collected in the district, (2) money received from the State?

9. Mention the different means provided by this State for the training of teachers.

10. What is the legal requirement relative to school-houses to be erected in all districts outside of cities of the first and second classes as to (1) staircases, (2) exit doors, (3) amount of pure air to be furnished?

ANSWERS.

1. State, for life; college graduate, for life; elementary, two years; academic, three years, etc.

2. Three years, $1,000 and $200 for expenses. (1) May direct trustees to make alterations and repairs to school buildings or to abate nuisances; may remove attendance officers or appoint trustees to fill vacancies.

3. August 1; the first Tuesday in August in each year.

4. A citizen of the United States; twenty-one years of age; residence in the district for at least thirty days.

5. School commissioner. When it is unfit for use and not worth repairing.

6. One district quota, $125; two teachers' quotas, $100 each. Total, $325.

7. (1) City Board of Education, (2) Board of Education, (3) town Board of each town with approval of the school commissioner.

8. (1) By the trustee, on the district collector; (2) by the trustee, on the town supervisor.

9. Normal schools, teachers' training classes, teachers' training schools, pedagogical departments in colleges, teachers' institutes, summer institutes.

10. No staircase shall be erected with winding steps in lieu of a platform, but shall be erected with straight runs, changes in direction being made by platforms. (2) All exit doors shall open outward, and shall, if double doors be used, be fastened with movable bolts operated simultaneously by one handle from the inner face of the door. (3) Thirty cubic feet of pure air every minute per pupil, and facilities for exhausting the foul or vitiated air.

METHODS AND SCHOOL MANAGEMENT.

1. Which should receive more attention in the lower grades, physiology or hygiene? Give reasons for your answer.

2. Mention three essentials that must be possessed by the teacher in order to achieve success.

3. Mention three things other than the final examination of the pupil that should receive consideration in determining the question of his promotion.

4. Should pupils be allowed a second trial in spelling a word orally? Give reason for your answer.

5. Give four methods of teaching primary reading. Describe briefly the method that you consider best, and state why you think it best.

ANSWERS.

1. Hygiene. It deals with facts that appeal to the child.

2. Good health, intelligence, and accurate training.

3 Class standing, age, physical and mental strength.

4. No. It makes the child careless.

5. Phonetic, word, sentence, alphabetic. The sentence method showing words in their relations, is the best, especially when reinforced by what is best in the word and phonetic methods.

BOOKKEEPING.

Either the single entry or the double entry system is allowed.

June 4, 1906. At Dunkirk, N. Y., John L. Brown and Amos Baker form a partnership under the firm name of Brown & Baker, to conduct a grocery business. Brown invests $2,000 in cash, and, at its present worth, an interest-bearing note for $4,800 payable on demand, dated Dunkirk, N. Y., Jan. 10, 1906, and signed by James Howe; on this note a payment of $1,200 was made April 4, 1906. Brown owes Frank Landon of Buffalo, N. Y., $850, which debt the firm assumes. Baker invests cash to make his investment equal to the net investment of Brown. The firm buys James T. Rogers' stock of goods for $4,500 cash.

June 6. Bought a horse and delivery wagon for $250 cash. Sold Henry Clark on account 1 barrel flour $7.25; 10 pounds sugar at 6½ cents; 2 pounds coffee at 35 cents.

June 7. Bought of F. S. Thurber & Co. on account 4 barrels (1180 pounds) sugar at 5½ cents; 10 chests (940 pounds) tea at 62½ cents; 8 barrels salt at $1.20. Sold Albert Bell on account 24 bushels potatoes at 75 cents; 5 pounds tea at 80 cents. Cash sales, $36.75.

June 8. Thomas Ryan presented a thirty day draft for $850, drawn on us in his favor to-day by Frank Landon, which draft we have accepted. Amos Baker draws for private use $150. Cash sales, $62.25

June 9. Paid store rent cash $100. Albert Bell pays his account in full by a note due in 30 days. Cash sales, $54.

1-3. Using proper signs and abbreviations, make all journal or day-book and cash-book entries.

4-5. Post items given in answers to questions 1-3.

6. Write draft mentioned in transaction of June 8 and show acceptance.

7. Show how the first transaction of June 8 was recorded in book of original entry by (*a*) Frank Landon, (*b*) Thomas Ryan.

8. Write and properly indorse note included in John L. Brown's investment.

9-10. Joseph Hawes began business with a net investment of $2,845. At the end of six months the footings of open accounts were as follows:

	Dr.	*Cr.*
Cash	$3495.18	$1836.75
J. C. Williams & Co.	200	432.68
John D. Howe	372.44	100
David Lawrence	154.25	
Roberts & French		250

This bill book shows notes due Hawes, $580, notes owed by him, $325. Inventory shows merchandise on hand, $1,742.56. Make a statement to show resources and liabilities, present worth, and loss or gain.

ANSWERS.

Journal

Dunkirk, N. Y., June 4, 1906.

Cash		2000	
Bills		3703 87	
	John L Brown		4853 87
	Frank Landon		850
Cash		4853 87	
	Amos Baker		4853 87
Mdse.		4500	
	Cash		4500
	6		
Expense		250	
	Cash		250
Henry Clark		8 60	
	Mdse.		8 60
	7		
Mdse.		664 95	
	F S Thurber & Co		664 95
Albert Bell		22	
	Mdse		22
Cash		54	
	Mdse.		54
	8		
Frank Landon		850	
	Bills Payable		850
Amos Baker		150	
	Cash		150
Cash		62 25	
	Mdse.		62 25

Ledger

John L. Brown

June	4	850		June	4	5703	87

Amos Baker

June	8	150		June	4	4853	87

Frank London

June	8	850		June	4	850	

Mdse.

June	4	4500		June	6	8	60
	7	664	95		7	22	
					"	36	75
					8	62	25
					9	54	

Henry Clark

June	6	8	66				

F. S. Thurber & Co.

				June	7	664	95

Albert Bell

June	7	22		June	9	22	

Expense

		250					
		100					

Bills Payable

				June	8	850	

Bills Receivable

June	4	3703	87				
	9	22					

Cash

June	4	2000		June	4	4500	
	"	4853	87		6	250	
	7	36	75		8	150	
	"	62	25		9	100	
	9	54					

6. BUFFALO, N. Y., June 8, 1906.
Thirty days after date pay to the order of Thomas Ryan eight hundred fifty dollars ($850) and charge to my account.
To John L. Brown, Frank Landon.
Dunkirk, N. Y.
(Written across the face of the draft.)
Accepted June 8, 1906, Brown & Baker.

7.

10	June 8, 1906		
	Bills Receivable	850	
	Frank Landon		850
11	June 8, 1906		
	Thomas Ryan	850	
	Brown & Baker		850

8. $4,800 DUNKIRK, N. Y., Jan. 10, 1906.
On demand I promise to pay to John L. Brown or order four thousand eight hundred dollars with interest, value received.
JAMES HOWE.

(On back of note.)
Received on the within note, twelve hundred dollars.
Pay Brown & Baker, or order. JOHN L. BROWN.

9-10.

Balance Sheet.

	Resources		Liabilities	
Cash	1658	45		
J. C. Williams & Co.			232	68
J. D. Howe	272	44		
David Lawrence	154	25		
Roberts & French			250	
Bills Receivable	580			
Bills Payable			325	
Mdse (invoice)	1742	54		
Present Worth			3600	
	4407	68	4407	68
Present Worth			3600	
Net Investment	2845			
Net Gain	755			
	3600		3600	

Four Modern Classics

By TUDOR JENKS

In the Days of Chaucer
In the Days of Shakespeare
In the Days of Milton
In the Days of Scott

Here is the way ancient England appeals to the popular mind. Tudor Jenks is the worldly wise scholar, a man of popular mould. To read after him is to walk the streets and mix with the living people of old England.

He has made the merry-hearted England of Chaucer's time live in our imagination.

He creates again our Shakespeare for us—Will Shakes-peare, the boy in Stratford, the young man who went to seek his fortune in London and later returned to the life of a country gentleman, a sportsman and a neighbor.

The England of John Milton is the England from which America drew its life, and Mr. Jenks has pictured Milton the affectionate friend, the blind seer, the lonely prophet of a great new world.

This remarkable set is completed by the story of Walter Scott, his comrades and his romances.

Dr. A. F. George, Professor of English in the Newton High School, says that he shall put these books in the [illegible] o his pupils as tempting morsels.

Each Illustrated. Price, One Dollar.

A. S. BARNES & CO., New York

Books of Permanent Value

"Have We a Huxley Among Us?"

"The call goes up for a new Moses in the wilderness, a new Huxley who shall lead us out of darkness into light. But whither shall we turn?" says *The N. Y. Herald*, August 6th, 1905, in a full page review of

The New Knowledge

By Robert Kennedy Duncan

Sir William Ramsay and M. Becquerel pronounce it one of the great books of the day. It makes the mysteries of science plain. It fascinates like a wizard's tale. It brings the knowledge of the world up to date.

Cloth, $2.00 net. By mail, $2.16.

The Shakespeare Story Book

By Mary MacLeod. With an introduction by Sidney Lee and many illustrations by Gordon Browne. 8vo, cloth, gilt top, $1.75.

Sea Shore Life

By Alfred Goldsborough Mayer. With 119 illustrations from life. The first volume in the New York Aquarium Nature Series. 8vo, cloth, $1.20 *net*.

The Right Life

By Henry A. Stimson. Talks to Boys and Girls. 12mo, cloth, $1.20 net.

The Only India Paper Edition of Edgar Allan Poe

With Introductions, Recollections of Poe by Richard Henry Stoddard, Biography and Notes. India Paper Edition. 16 mo. Illustrated. 6 volumes. Limp leather, $5.00.

The Business of Life Insurance

By Miles Menander Dawson. 12mo, cloth, $1.50 *net*. (*Second Edition*.)

Uncle Sam and His Children

By Judson Wade Shaw, A. M. 12mo, cloth. Illustrated. $1.50 net.

A. S. Barnes & Co., 11-15 East 24th St., N. Y.

Educational Foundations

FEBRUARY
1907

VOL. XVIII
NO. 6

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY

ELIZABETH, N. J.
Entered as Second Class Matter at
the Post Office at Elizabeth, N. J.
NEW YORK CITY

Copyright, 1907, by A. S. Barnes & Company, New York

Books of Permanent Value

"Have We a Huxley Among Us?"

"The call goes up for a new *Moses* in the wilderness, a new Huxley who shall lead us out of darkness into light. But whither shall we turn?" says *The N. Y. Herald*, August 6th, 1905, in a full page review of

The New Knowledge

By Robert Kennedy Duncan

Sir William Ramsay and M. Becquerel pronounce it one of the great books of the day. It makes the mysteries of science plain. It fascinates like a wizard's tale. It brings the knowledge of the world up to date.

Cloth, $2.00 net. By mail, $2.16.

The Shakespeare Story Book

By Mary Macleod. With an introduction by Sidney Lee and many illustrations by Gordon Browne. 8vo, cloth, gilt top, $1.75.

Sea Shore Life

By Alfred Goldsborough Mayer. With 119 illustrations from life. The first volume in the New York Aquarium Nature Series. 8vo, cloth, $1.20 *net*.

The Right Life

By Henry A. Stimson. Talks to Boys and Girls. 12mo, cloth, $1.20 *net*.

The Only India Paper Edition of Edgar Allan Poe

With Introductions, Recollections of Poe by Richard Henry Stoddard, Biography and Notes. India Paper Edition. 16 mo. Illustrated. 4 volumes. Limp leather, $5.00.

The Business of Life Insurance

By Miles Menander Dawson. 12mo, cloth, $1.50 *net*. (*Second Edition*)

Uncle Sam and His Children

By Judson Wade Shaw, A. M. 12mo, cloth. Illustrated. $1.20 *net*.

A. S. Barnes & Co., 11-15 East 24th St., N. Y.

Educational Foundations

FEBRUARY
1907

VOL. XVIII
NO. 6

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY
ELIZABETH, N. J. Entered as Second Class Matter at the Post Office at Elizabeth, N. J. NEW YORK CITY

Copyright 1907 by A. S. Barnes & Company, New York

Contents for February, 1907

Editorial - - - - - - - - - - 401

THE COURSE OF STUDY

Reading: I. Function of the Reading Lesson. C. B. Gilbert - - - - - - - 403

Educational Research: Causes of Success and Failure in Arithmetic. J. M. Rice - - 418

The Making of a Program for Rural Schools. G. W. Dickson - - - - - - - 437

Apperception and Its Relation to Other Mental Processes. Joseph S. Taylor - - - - 454

The Autobiography of a Teacher. VI. C. Hanford Henderson - - - - - - - - 463

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to June inclusive, at $1.25 a year, and is sent to its subscribers regularly until ordered to be discontinued and arrears paid for in full. We also publish The School Journal, weekly, $2.50 a year; Teachers Magazine, monthly, $1.00 a year; and Our Times, weekly, $1.25 a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly 400 Standard Teachers' books and Aids; also Recitation and Dialog books, Blackboard Stencils, Teachers' Aids, etc.

All requests for catalogs, orders for books, etc., should be sent to

A. S. BARNES & COMPANY

101 Tremont Street
BOSTON, MASS.

11-15 East 24th Street
NEW YORK

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII FEBRUARY, 1907 No. 6

Teaching is not a post-mortem tabulation, but the nurturing of ideals and the devising of ways and means for realizing these ideals in forms of life.

School Cities and School Senates and similar devices do not assure good citizenship; they may become machines for the perfection of dishonesty and unloveliness generally. It's the spirit that counts. And that may develop under any régime that is not in its aims at variance with the principles of Americanism.

A school that rewards pupils according to their success at examinations rather than according to the effort brought to the work, encourages dishonesty.

Wrong standards of success have done a world of harm in public life; let the schools beware of them.

Not many years ago it was the custom of school visitors—and frequently teachers, too—on every available occasion to fire the ambitions of the young with stories of poor country boys who left home for some great city, and beginning at the bottom of the ladder rose by persistence to fame and fortune. The "fame and fortune" of these tales almost invariably meant the possession of an excessive share of the world's goods. Thieves and those who accumulated wealth by prostituting civic institutions to machines for selfish gain became heroes in the eyes of the young. And the young of those days learned the lesson well. That is one reason why our country groans and prays that "graft" may cease.

The teaching of civics is of little avail if it does not strengthen the desire to labor for the public good.

The Course of Study

Reading

I. Function of the Reading Lesson

DOUBTLESS arithmetic in its simpler processes satisfies a more elemental human need than reading. The illiterate often can perform accurately the operations upon numbers required for the commoner business transactions. Indeed they must do so if they are to enter into even the simple economic relations necessary to making a living. Whereas reading, tho vastly useful, is not essential to such relations. This is further shown by the fact that not so many years ago the great majority of successful men, even the very rich and powerful, often could not read at all. But manifestly they could and did compute.

Notwithstanding this fact, it is still true that reading makes possible the satisfaction, certainly of higher human needs and probably of a larger number than arithmetic. Consider the limitations of him who cannot read. How small is his field, how narrow his horizon, how restricted his outlook. The limits of his vision and the length and strength of his legs bound his world. He knows what his senses tell him immediately, and the only supplement to his knowledge derived from the actual contact with things comes thru the spoken word, uncertain oral tradition. Without the art of recording thoughts in symbols and the twin art of translating the symbols again into thoughts, man has no past but a vague and brief shadow, and no present beyond the encircling horizon observed from the nearby hill top.

But teach him to read and lo! his horizon is lost in infinity. All the past is his and all the present. He may enter at once the glorious democracy of letters. The great of all ages, poets, sages, seers, may be his friends and associates. He may pace the Academe with Plato, may listen to the inescapable questions of Socrates. The verses of Hafiz, the gentle speech of Buddha, the laws of Moses, the Songs of Homer, of Dante, of Goëthe and of Shakespeare,—all are his. He may live over again the wanderings and sacrifice of Abraham, the conquests and defeats of Cyrus and of Caesar, of Charlemagne and of Bonaparte, of Nelson and of Washington, may enter into the struggles and triumphs of Galileo and of Newton and of Humboldt, of Columbus, of Magellan, and of Cortez,— and all because he can read.

Truly, not even gold, the magical key, can open the doors to so many treasure houses, so many gardens of delight, such a paradise of choice spirits as this common art of reading, the chiefest of all arts, and this wonderful key is offered to every boy and every girl at the price of a little toil.

Unfortunately many who are given the key never use it to possess themselves of the treasures within their reach. Why is this? What can the schools do to bring a larger number of children into full and conscious possession of their noble heritage? How shall reading be taught to secure its higher as well as its lower ends? What are the ends to be aimed at in the reading lesson?

They are (1) Ability to get the thought conveyed by the symbols found on the printed page, accurately and speedily. (2) Ability to judge the values of what is read, a discriminating taste, a genuine love for good literature. (This involves a considerable knowledge by the children of such literature as properly falls within the field of their interest and comprehension.) (3) Ability to read aloud agreeably and effectively. In addition, the process of learning to read should cultivate the power to think.

II.

LEARNING TO READ.

Let us consider learning to read, what it is and some of the commoner methods of teaching the art, and how to make accurate and rapid readers.

Reading is interpreting symbols, imaging the ideas or thinking the thoughts that they symbolize.

The complexity of the symbolism employed sometimes causes confusion in the minds of teachers of reading and is responsible for over-emphasis upon the less important features, producing faulty methods and poor results.

A single letter stands for, not a thought or idea, but a sound, sometimes for any one of several different sounds, according to the relations in which it occurs. The written word has two distinct phases: it stands for a synthesis of the various sounds represented by the different letters and it is the symbol of an idea.

For example, the letters *r*, *u*, *n* represent not ideas but different sounds, effects produced upon the auditory nerve by waves of air, set in motion by certain muscular movements of the vocal organs.

But these sounds heard in quick succession produce in the mind an idea or image of an action—*running*, having naturally no relation whatever to the sounds. Moreover, the sight of the letters that represent the sounds produces in the mind the same image that hearing the sounds causes. The written word *run* becomes the representative of the spoken word *run*, but upon observing the written word the trained mind forms an immediate image of the idea *run*, without, at least consciously, thinking of the spoken word thru which it comes to symbolize the idea. So we say justly that the written word is the symbol of an idea, altho in its origin it is a step removed from the idea. This relation of the written symbol of an idea to the spoken word that represents the same idea is comparatively modern.

The spoken word necessarily preceded the written word. But the first graphic symbols employed had no relation whatever to the spoken words that stood for the same ideas. The origin of the oral names of ideas is enveloped in mystery and told only in myth. The first graphic symbols were pictures, rough representations of objects or actions, made with chisel or brush, and the earliest typical characters having a general significance, such as the cuneiform, were merely conventionalized pictures and bore no relation to the spoken word.

The earliest alphabet, on the other hand, was an attempt to represent the uttered sound graphically and so bring the oral representations and the written symbols of ideas into harmony.

Naturally, in order to make an alphabet, a list of arbitrary haracters which should represent the sound elements of words, it was necessary to analyze the spoken word first into its sounds. For not only did the spoken word precede the written word, it preceded any conscious consideration of its sound elements. To the makers of the first alphabet the word existed already made and the first step was the analysis of its sounds. Characters were invented to represent them and then names were given to these characters. Then characters were put together in the order in which they were sounded in the spoken word, to make the written word.

I have treated this phase of the subject so fully, not for the sake of descanting upon the obvious, but if possible to throw a little light upon the various methods of introducing children to the greatest of the arts, advocated, often with so much warmth, as nostrums or panaceas.

Learning to read then is learning to translate the symbols found upon the printed page into images representing ideas. To the ready reader the sight of the printed word gives the idea; this step is immediate, the spoken word not entering into the process. The beginner may make the step either directly, or with the assistance of the spoken word (either heard or imaged), according to the quality of his mind and sometimes according to the method by which he is taught.

The notably ear-minded child will probably in most cases image the sound, and the sound heard will usually aid his visualization of the word, while the markedly eye-minded child will go more readily from the symbol to the idea directly, and the introducing of the sound element at an early stage is so him confusing rather than helpful.

Naturally, stress put upon "phonics" or upon "thought" by the teacher at the outset of a child's reading career will affect his method of grasping the thought from the symbol.

Whatever the method of first initiating a child into the mysteries of reading, sooner or later he must master the entire process and all the relations. He must be able to transmute sight into sound; upon seeing the symbol he must in imagination hear the word spoken and he must be able to dissolve it into its sonant elements. Again he must be able at the sight of letters, standing for known sonant elements, to unite in imagination these known elements in new relations forming other words. That is, from an analysis of *run* he must get the sounds *r-u-n* as represented by the letters *r*, *u*, and *n*, and from this knowledge he must be able to read at sight *u-r-n*, *urn*. And always finally he must be able to pass at sight from the symbol to the idea without the mediation of the imaged sound.

This elaborate analysis, however, need not be introduced at the beginning of a child's learning to read. Indeed, its very complexity is one of the arguments against such early introduction. This will be more fully discussed later under the head of method.

One other phase of this subject needs elucidation at this point.

Mr. William T. Harris, that profound educational logician has said repeatedly that, in learning to read, a child from being ear-minded becomes eye-minded. I cannot but think that this is an extreme over-statement and that for once Homer has nodded. A child before he learns to read is by no means solely, nor even chiefly, an ear-minded being. Nor is the only effect of learning to read an increase of eye-mindedness. The eye feeds the mind of a normal child from earliest infancy beyond all possible calculation. Moreover, learning to read, while it does open a whole new field to the mind thru the eye, at the same time greatly enlarges the ear's contribution to the mental content.

The constant overlapping of the senses or borrowing by our sense from another, by which all are enriched thru common contributions, is exceedingly influential here. The sigh stimulates and enriches the hearing. The constant necessary interchange of sight and hearing in the process of reading brings to each sense a contribution from the other.

So while Homer's contemporaries *heard* Homer's poems, we, reading them, by this transfer of intelligence, get vastly more enjoyment because the written word carries us back to its source, the spoken word, and in mind we hear the "sounding sea." Indeed, without this sub-conscious hearing upon sight, rhythm and rhyme would have no meaning to the silent reader. Poe's "Bells" would be silly and all poetic form would be absurd, except when read aloud.

Dr. Harris doubtless had in mind the field of language. Before learning to read a child is ear-minded as to words. He knows them only as he hears them. After learning to read he knows them also as he sees them. But his ear-mindedness is not thereby diminished, or should not be. Eye-mindedness is added to it, not substituted for it. And as the world's valuable treasures of knowledge are locked up in books and open to the eye alone, this addition is a whole world.

III.

THE DEVELOPMENT OF TASTE.

Obviously the purpose of the reading lesson is to teach the child to get the thought from the printed page, and all other elements, as the study of sounds or the names of letters, that enter into the instruction, are at most but accessories and aids to the single purpose of the lesson. And they may be ignored for the present, while we consider the thought element. Since reading is thinking, the thoughts expressed by the symbols, even in the very earliest beginnings of learning the art, it stands to reason that the thought to be read should be worth the child's thinking. I do not need to say that to think unworthy or idle thoughts is in effect degrading, and when this is done under strong impulse, with the mind intensely active and working at its best, the effect is at least most wasteful, and the habitual attitude toward the act of reading thus produced is unfortunate.

Of course school readers do not contain evil thoughts, but many of them do contain silly, idle thoughts unworthy to be thought by the children. This is particularly true of many of the "primers" and "first readers," and "second readers" in common use, and especially and almost of necessity of those made to exploit some favorite "method."

The much derided "See the ox go up" primer has been given place to the primer of "I see an ox." It is not necessary to fill primers with history or geography or philosophy, but they should contain statements of thought that mean something to the children and something worth while, facts or fancies that belong to their world,—and they should contain nothing else. There is abundance of available material in the natural activities of children and in the delightful field of children's lore to equip any primer builder.

If every reading lesson is to be a thought lesson, everything read should of course contain worthy thought. Reading books from the highest to the lowest should satisfy the two main purposes of reading, getting information and finding enjoyment. The latter is really of more importance than the former. The habit of reading for information is much more likely to be stimulated out of school than that of reading for pleasure, especially elevated and elevating pleasure. So every reading lesson should be not a task but a joy. Children should come to look upon a book as a treasure house, to be approached with glad anticipation. This mental attitude can be cultivated only by presenting books that both gratify and develop literary taste.

The school reading book gives to the majority of children in the schools their only introduction to genuine literature. Literary taste, ability to enjoy the best in this treasure house, if not cultivated thru the reading lesson, will never be cultivated. Hence it is little less than criminal to waste this precious opportunity on any material not the best that the children can appreciate.

On the other hand caution is needed against offering young, untrained children too high standards. This mistake sends them to the other extreme. If the children of a school are found to be reading "Wild Ike, the Bloody Broncho-Buster," or "The Poisoned Gum Drop, or the Candy Woman's Revenge," it is an indication that the teaching of reading is not filling its full measure of possibility; a taste for better literature has not been developed. The reading matter may have been merely combinations of words to illustrate a "method." It may have been serious literature beyond the present capacity of the children, or it may have been fragmentary and disassociated excerpts from good literature, insufficient to create a standard or to develop a desire to read more of like character. Even if the books contain good selections in the form of literary wholes, they may have been treated merely as reading lessons to the exclusion of their higher ends,—for all these are causes of lack of fondness for good literature.

The reading lesson, of all the lessons in the day's program, should not be a task. It should always be reading literature to get at the thought and the spirit of what is read,—in manner as nearly like reading out of school as possible, only more thoro and more appreciative. It should always be a careful and sympathetic study of the selection. Moreover the children being introduced to the delights of the author whose production is read should be tempted by suggestion to read more from the same author at home. The teacher of reading should be in close alliance with the public library, if such an institution exists. The establishment of libraries in schools is fortunately a rapidly growing custom. Such a library of well selected books of general literature, adapted to the needs and capacities of children, makes possible the development of the reading lesson into a literary feast.

It is especially important that poetry be carefully, persistently, and sympathetically read and studied in school. I have known teachers to skip the poetic selections in the reading book because either they or the children did not "like poetry." Poetry is the highest form of literature, and for that very reason is "caviare to the vulgar." More than any other form it needs to be interpreted to the children. They need to be led to see that poetic expression is not only the most beautiful, but is also the most effective and forceful of all forms of literary art. The study of figures of speech, of rhyme and rhythm, should be made much of. The teacher, if a good reader (and the teacher should always be a good reader), should read aloud to the school choice poetry that the children may catch from the modulated voice that undefinable, subtle aroma which is the spirit of true poetry.

Of course the elemental object of teaching reading must not be lost sight of. The children are, first of all, to learn to read, to acquire power in the interpretation of the symbols of thought used in writing. Especially in the lower grades the mechanics of the subject, the learning to recognize words and to name new words by analyzing them into their sonant elements, must be rigorously taught, to make possible the study of the literature read. But these two processes should go on side by side. They are reciprocal. If the literature read appeals to the children, they are easily induced to perform the mechanical drudgery necessary to its mastery. If it does not appeal to them, their learning to read becomes an arduous task and they look elsewhere for their pleasurable reading.

In most schools reading is taught thruout the primary grades rigorously, even if not wisely, but too often in the higher grades it is neglected. It is not uncommon to find daily programs in grammar schools with no place for reading. Here is obviously the very best place for developing taste, because the children are more mature and better capable of appreciating good literature. Here, especially, the reading should be of literary wholes, unmodified by the over anxious editor. The grammar school pupil does not need to have his mental food predigested. The principle of grading employed in making too many higher readers is wrong. Readers above the second or third should be graded according to thought rather than words. If the subject matter is comprehensible and interesting to the children, they will master the words even if they are "hard." But easy words do not make easy reading of selections whose thought is beyond the children. This points to two opposing errors found in present day reading books. In those of one kind, good literature is "written down" to the capacities of the unhappy children. I have even known so delightful and childlike a piece as Irving's "Rip Van Winkle" and "Legend of Sleepy Hollow" to be made over for the children. This is little less than murder, nor is it necessary, for the reason given above. The other error is in giving profound writings to children because the words are simple. Gray's "Elegy in a Country Churchyard" I have seen in a reader for intermediate grades, where it is manifestly out of place. The whole thought and spirit of the poem require mature minds for their appreciation. The elegy, from its very nature, is unfit for young children, and Gray's is no exception. One might as well give them "In Memoriam," "Lycidas," or "Adonais." The study that is put upon such selections by the very young simply spoils them for later enjoyment, and drives the pupils to the Nickel Horror. On the other hand, many of Shakespeare's plays make admirable reading matter for the grammar school. The vital interest and the dramatic action carry the pupils over the difficulties of the vocabulary.

The principle is plain. Give children the very choicest literature they can appreciate and enjoy, but don't force them, and above all don't spoil choice literature by making it over for reading lessons ahead of its turn. Wait till the children arrive at it as the author made it. The worst instance of this sort of desecration is re-writing in simple prose the story of a choice poem.

The story is but one element of the poem and usually the least important, except as a skeleton. But it is necessary to the poem as a whole. There are good stories enough for children of all grades, written in suitable language, without filching the hearts out of choice poems. Even great authors cannot write over great poems successfully. Tho children in the grammar grades love to read Shakespeare, as a rule they do not care for Lamb's Tales from Shakespeare.

Give children an abundance of good literature as it came from the pen of genius, in wholes and unspoiled.

IV.

READING ALOUD.

The third of the functions of the reading lesson is the ability to read aloud to the edification and enjoyment of the listeners, to reproduce orally, exactness in word and in spirit the thought expressed in the symbol.

In the school reading lesson, especially in the earlier years, reading aloud is a necessary part of the exercise, the proof that the pupil reads. In later years it is a fine art too often ignored.

Reading, it will be recalled, is getting the thought from the symbol either immediately upon observation, or mediately thru imaging the sounds of the spoken word.

Reading aloud is going a step farther and uttering the word after the thought has been grasped. The distinction needs to be made between merely calling the words phonically and reading them. To utter the sounds *r-u-n* in quick succession as the word *run* while thinking merely of the sonant elements is not to read *run*. Reading involves thinking the idea *run*, and oral reading means speaking the word *run* as expressive of the idea. This is important as having a distinct bearing upon the method of teaching the art, as will be evident later.

Oral reading involves, on its mechanical side, breathing, vocalization, enunciation, and pronunciation. In the primary classes breathing and vocalization may be taken for granted. Correct breathing and the production of pure tones are of course important but there is no time for their consideration in the ordinary primary school. As a rule, too, the breathing and the voices of children are more natural and hence better than of adults.

But enunciation and pronunciation must receive stress from the first. By enunciation we mean the distinct utterance of the various vowel and consonant sounds involved in speaking a word. By pronunciation we mean the utterance of the word as a whole correctly, with proper accent, as determined by standard authorities. To "slur" letters, to give incorrect or indistinct sounds to letters, to run together, as to say *bein'* for *being;* or *p'r'aps* for *perhaps; gentlemun* for *gentleman; New Yawk* for *New York; woild* for *world; histry* for *history; jography* for *geography*, are common instances of bad enunciation.

"*Watchuthinknof?*" looks *Slavic*, but is quite common Yankee.

To say *Euro'pean* for *Europe'an, haow* for *how, noo* for *new, thru* (threw) for *through* (throo), (in spite of the spelling reformers), *colyum* for *column, hor'izon* for *horiz'on, interes'ted* for *in'terested*, is to pronounce incorrectly.

These two classes of errors are sure to show their heads continually in school, and must be hit whenever they appear, but the reading lesson affords the best opportunity for dealing with them systematically. They arise from various causes, chief among which is habit acquired in the home and on the street.

Faulty enunciation is often due to some defect of the vocal organs, and faulty pronunciation to ignorance pure and simple. To correct these errors should be a principal object of the reading lesson, because they are serious defects, not merely in reading, but in all utterance, and are likely to materially effect future success among men. The world over, the method of utterance is one of the accepted standards of cultivation.

How may the faults be removed? In most cases, only by persistent efforts to secure correct utterance, and the substitution of good habits for bad. In case of physical defects the assistance of a surgeon may be required, tho often a simple course of exercises will furnish all the remedy needed. Stuttering, for example, is usually due to a diseased or overstimulated nervous system, and except in extreme cases can be helped or even cured by enforced deliberation of utterance, regularly persisted in. Difficulty in uttering distinctly particular letters, as *s* or *l*, can usually be overcome by steady, deliberate practice in uttering them. Some instruction at first may be needed as to the proper disposition of tongue, teeth, or lips to produce the correct sound. Of the bad habits, the most common, and the most disastrous as well, is that of slurring letters, both vowels and consonants. Few adults, even of liberal education, utter their words clearly, thru to the finish. We haven't time to enounce. We telegraph our message, omitting every sound not absolutely required to give meaning. Such exercises as reading or reciting words, verses, or sentences with great deliberation and with over emphasis upon all sounds, are helpful. Drill upon the utterance of such words as *in-di-vis-i-bi-li-ty*, giving the short sound to *i* in each syllable, is valuable, as is the use of the old enunciation puzzles, as "A big black bear bit a big black bug." "Round the rugged rock the ragged rascal ran." "Peter Piper picked a peck of pickled peppers," with the good old "Theophilus Thistle, the celebrated thistle sifter, while sifting a sieve full of unsifted thistles, thrust three thousand thistles thru the thick of his thumb," repeated in various forms.

Then the reading or reciting of poems or prose selections markedly anomatopoetic make good drill in enunciation, as Poe's "Bells," Montgomery's "Arnold von Winkelried," Byron's "Fall of Sanacherib," Southey's "How the Waters Came Down at Lodore," Tennyson's "The Splendor Falls," Dryden's "Ode to St. Cecilia," Dickens' description of the locksmith in Barnaby Rudge, Chap. XLI. The selections for practice should be made with reference to the particular defects or habits to be remedied.

It is well to begin with the younger children by reading to them short selections which bring out prominently certain sounds and ask them to indicate those sounds and to reproduce them. For the ear is frequently the cause of bad enunciation. It does not always distinguish sounds and must be trained to hear accurately.

I recall an argument with a lady whose whole life had been spent in New York City, over the sound of the letter *r*. She, of course, had the local habit of slurring it or dropping it altogether. But she insisted that she did pronounce it. Finally I discovered that apparently her ear could not perceive the ordinary sound of *r* at all. She could not, for instance, distinguish between *are* and *ah*, when spoken. Only over-emphasis and a prolonged trilling of the sound enabled her to perceive it.

Altho a thoroly bad enunciation is perhaps seldom wholly corrected, careful instruction, much practice, and never ceasing insistence, especially in the reading lesson, can accomplish much.

A distinguished bishop tells of visiting an English laborer's family at dinner time.

The principal article of food was some delicious Yorkshire ham. The laborer's son, after consuming a generous portion, asked for more, and this conversation ensued.

BOY—"Dad, H'Id like some more 'am.

FATHER—"You mean *'am*, my son."

BOY—"That's wot I said: I said 'am"

FATHER—"No, you said: *'am*."

MOTHER (aside to Bishop)—" 'Ear 'em. They both think they said *'am*."

Faulty pronunciation, especially if taken early, can much more easily be remedied. As has been said, it is in many cases due to ignorance. This requires merely acquaintance with the correct standard. In other cases, it is habit which calls for attention and insistence. Usually, too, faulty pronunciation is limited to a comparatively few words.

The greatest difficulty is likely to be provincial pronunciation, customs prevailing in localities and sometimes in whole regions. Such are the New England *yew* for *you*, *hev* for *have*, *stupenjus* for *stupendous*, *goom* for *gum*. The Pennsylvania *căăow* for *cow*, *mă* for *mä*, the Southern *ah* for *I*, the Irish *charac'ter*.

The difficulty with this class of errors is not merely fixed habit, but inability to distinguish the sounds by the ear. Even teachers working in the locality where they have been brought up cannot detect the familiar errors of pronunciation committed by the children, but are guilty of them themselves. It is only by a careful training of the ear and a constant study of standards that errors of pronunciation, either provincial or personal, can be eradicated. One of the best means of correcting our own faults of sound-perception and of sound-production is to listen closely to cultivated public speakers, and especially to good actors, people whose business it is to be right in these respects. In case of doubt always consult a dictionary.

The two faults of speech common in oral reading above mentioned are all that can profitably be attended to in the earlier primary grades while the children are mastering the symbols. But false modes of breathing and bad qualities of voice must be remedied before reading aloud as an art and a source of pleasure is possible.

These two subjects belong so largely to the specialist that I shall not attempt to treat them at length. But to give a few suggestions as to exercises that may be employed in the schoolroom in connection with the reading lesson. These can be introduced into the intermediate grades advantageously.

The breathing should be full and deep. Breathing exercises, filling the lungs to the bottom, just before reading, are helpful. To begin a sentence with the lungs nearly empty necessitates an early break in the reading. The breath should be taken in thru the nostrils. Deep breathing thru the nose and giving out the breath very slowly thru the mouth, clearly vocalized, allowing no breath to escape without producing tone, if repeated regularly, will greatly improve the breathing of a class while reading.

The production of good tone is really easier to secure than good breathing. The common faults of tone in school reading, are, among the boys, a hard and unnatural quality and excessive nasality, and among the girls, high pitch and an ear-splitting shrill quality. Both boys and girls talk, if they do not read, too loudly and noisily. This fault continued to adult years and intensified has made the "American voice" justly an object of unpleasant comment.

How can we get soft, tuneful, clear voices? Only thru much practice and continued insistence. In the first place the teacher's voice should possess these qualities, a condition, alas! seldom fulfilled. Children unconsciously imitate. A noisy teacher makes a noisy school.

It is essential to avoid shouting in all exercises. Make plain the difference between force and noise. Practise whispering to a distance. Especially have much reading and reciting of literature, calling for the quality the opposite of the one to be corrected, as for a harsh voice, lullabies, such as "Sweet and Low," "O, Hush Thee, my Baby," for a high pitched, shrill voice, "By Nebo's Lonely Mountain," or "Not a Drum was Heard," for a nasal voice, Byron's apostrophe to the ocean, "Roll on thou deep and dark blue ocean, roll," or Carthon's apostrophe to the sun, "O thou that rollest above, round as the shield of my fathers." In all cases try to have the voice reflect the sentiment. These are merely suggestive exercises for correcting glaring errors of vocalization.

The art of reading aloud, now so nearly obsolete, is one of the most generally attractive of all the arts. It is especially effective for poetry, oratory, fiction, and dramatic writings. Pure literature, interpreted by a genuine and sympathetic artist, shares with song, "Music married to immortal verse," the honor of being both the most human and the most divine of arts.

> And lend to the rhyme of the poet
> The beauty of thy voice.

In the next issue I purpose to discuss reading aloud, more fully, and also to give a careful analysis of the various methods of teaching reading.

C. B. GILBERT.

Educational Research: Causes of Success and Failure in Arithmetic

In the preceding article I presented the results of a test in arithmetic. The tests had been made in eighteen school buildings, representing seven cities, and about six thousand children had participated. The figures varied enormously, and showed that for some schools the problems were comparatively easy, while for others they presented unusual difficulties. Moreover, as to merit, the results were distributed with striking regularity; the differences in the percentages obtained by the different schools of a given community, being, for the most part, small.

That the expenditure of time and effort on the part of the pupils should be duly rewarded in some localities and very poorly repaid in others indicates that in some communities a remedy is called for. However, to be effective, the remedy must have an eye to the cause, so that our search for remedial measures must, in the first instance, be directed toward the discovery of the cause of success in some cases and of failure in others. With this in view, it will be necessary to consider the results in the light of each of the elements that enter into the education of the child, as it will not be possible in any other way to find the controlling one.*

In the preceding article I pointed out that the variations in results could not be accounted for by differences in the circumstances under which the teacher labors—differences in the home environment of the pupils, their average age, or the size of the classes; showing that the cause of the variations would

---

*After the publication of this table, I was informed by the principal of School 2, City VII, that he had overestimated the time devoted to arithmetic in his school; the actual time being forty-five minutes, not seventy-five. It is also to be noted that in School 2, City I, about twenty minutes daily are devoted, at school, to preparation so that strictly speaking the time is the same as in Schools 3 and 4, City I.

TABLE I.

	School.	4		5		6		7		8		SCHOOL AVERAGE.			Minutes daily.	When taken.
		Result.	Principle.	Result.	Principle.	Result.	Principle.	Result.	Principle.	Result.	Principle.	Result.	Principle.	Per cent. of mechanical errors.		
City III	1	68.4	76.7	79.5	82 5	79 8	80.8	81.1	82.8	91.7	98.9	80.0	88.1	8.7	58	A.M.
City I	1	72 7	81.4	84 7	88.8	80 4	81.5	64.2	67.2	80.9	82.8	76.6	80.8	4.6	60	A.M.
City I	2	....	....	80 8	87.1	80 9	88.4	48.5	50.9	72.7	79.1	69.8	75.1	7.7	25	A.M.
City I	3	54.5	66.0	74.7	78.8	72.2	74.0	63.5	66.2	74.5	76.6	67.8	72.2	6.1	45	A.M.
City I	4	60.0	78.8	70.8	79.8	69.6	72.2	54.6	57.8	66.5	69.1	64.8	70.8	8.5	45	P.M.
City II	1	81.8	87.7	78.2	85.6	71.2	75.8	88.6	85.7	86.8	40.0	60.2	64.8	7.1	60	P.M.
City III	2	70.1	79.9	58.6	60.0	48.7	45.0	58.9	56.7	51.1	58.1	54.5	58.9	7.4	60	P.M.
City IV	1	70.5	76.4	78.2	77.7	58.9	60.4	81.2	84.1	41.6	48.5	55.1	58.4	5.6	60	A.M.
City IV	2	62.9	72.8	70.5	76.8	59.8	68.1	....	....	22.5	22.5	58.9	58.8	8.8	..	P.M.
City IV	3	59.8	72.7	65.8	78.5	54.9	58.1	85.2	88,6	48.5	45.0	51.5	57.6	10.5	60	A.M.
City IV	4	58.5	62.2	58.5	65.7	42.8	45,1	16.1	19.2	48.7	48.7	42.8	48.2	11.2	..	P.M.
City V	1	38.5	46.8	67.0	71.0	44 1	48.7	29.2	82.5	51.1	58.8	45.9	51.8	10.5	40	P.M.
City VI	1	28.1	81.7	88.1	44.2	68 8	71.8	88.5	86.6	26.9	80.7	89.0	42.9	9.0	88	A.M.
City VI	2	41.6	51.9	45.8	52.1	46.1	49 5	19.5	24.2	80.2	40.6	86.5	48.6	16.2	80	P.M.
City VI	3	86.8	54.2	55.0	62.8	84.5	86 4	80.5	85.1	28.8	24.1	86.0	42.5	15.2	48	P.M.
City VII	1	59.8	69.8	58.7	68.1	85.2	87.7	29.1	82.5	25.1	27.2	40.5	45.9	11.7	42	A.M.
City VII	2	47.4	55.2	65.4	71.4	85.2	88.7	15.0	16.4	19.6	21.2	86.5	40 6	10.1	75	P.M.
City VII	3	41.1	58.0	87.5	44.5	27.6	88.7	8.9	10.1	11.8	11.8	25.8	81.5	19.6	45+	P.M.
General average	...	59.5	69.9	69.4	75.5	60.7	68.2	89.4	42.5	49.4	51.9	55.7	60 6	8.1		
Per cent of mechanical errors	....	....	14.8	....	8.1	....	8.9	....	7.8	....	4.8					
Number of pupils examined	....	....	1,422	....	1,598	....	1,285	....	974	....	689	Total, 5,968.				

have to be sought on the pedagogical side. I shall now take up the latter aspect of the problem.

The pedagogical side of the problem may be subdivided into two principal parts:

(1) The factors brought into play by the teacher; and

(2) The elements relating to those appointed to direct and supervise the work of the teacher.

The elements brought into play by the teacher, tho numerous, may, for practical purposes, be resolved into three primary factors:

1. The time devoted to arithmetic;
2. The methods of instruction; and
3. Teaching ability, as represented by a combination of education, training, and the personality of the teacher.

The first of these points received attention in the preceding article; and it was found that the results did not bear a direct relation to the amount of time devoted to arithmetic, so that this element could not be looked upon as the controlling one. I shall here merely recall the fact that the schools whose results were satisfactory proved their ability to do creditable work with a time allotment of forty-five minutes a day, while some of the schools whose results were unsatisfactory failed in spite of a larger appropriation of time.

The point has been raised that the demand in the way of home-work may have been greater in the successful schools than in those that had failed, indicating that, possibly, in some instances, more time had been devoted to arithmetic than showed on the surface. During subsequent visits to the same schools I looked into this matter with considerable care; and I found, much to my surprise, that by far the greatest amount of home-work in arithmetic was required in City VII, whose schools had obtained the poorest results. In this locality it had constituted an important feature of every grade from the fourth year onward; the requirement in some instances being truly inordinate. On the whole, the average time devoted to it was certainly not less than thirty minutes a day. On the other hand, home-work in arithmetic was looked upon with disfavor by the teachers of all the schools that I have called successful—the first five in the table—and had been practically abandoned in nine cases out of ten.

These facts show conclusively that home-work in arithmetic is not the controlling factor. Indeed the results of my interviews with principals and teachers prove to me conclusively that home-work in arithmetic means a tax upon the time and energy of the pupil, for which he receives very meager, if any, compensation. Consequently, I wish to add to my suggestion as to the amount of time to be apportioned to arithmetic, that the forty-five minutes daily should stand for the preparation and recitation combined.

Secondly, methods of teaching can certainly not be looked upon as the controlling element. While in some instances, special methods, based on special psychological theories, had been followed; and while the teachers who used them were, as a rule, enthusiastic in their praise, they did not seem to have proved a panacea. In the schools that passed my test satisfactorily no special methods had been in use.

There is, however, one thing in relation to the teaching of arithmetic that must be regarded as unusually important, and which should receive the attention of every educator. At one point in my investigation I had been led to believe that it was the controlling factor; but further observation compelled me to abandon the notion. The idea is this, that no new step in arithmetic should be taken until all the principles previously acquired are perfectly clear in the minds of the pupils. Where this plan is not observed, the teachers labor upon the theory that the pupils on entering a new grade are perfectly familiar with everything that had been covered in previous grades and are therefore prepared to enter into the new work without any delay. On the other hand, where the principle is recognized, the teacher of the new grade does not take such knowledge for granted. One seventh-year teacher told me that she does not assume any knowledge on the part of the pupils beyond that of addition, subtraction, multiplication, and division of whole numbers. In such instances, the teacher, on receiving a new class, does not at once begin with the work laid down for her grade, but takes up previous work, chapter by chapter, until she strikes a weak point, where she lingers as long as she thinks necessary. Indeed, I have found a number of schools where the teachers are accustomed to devote several weeks to reviewing the work of previous grades before even touching upon their own grade work. Here progress is apparently slow; but by securing a firm foundation at the outset, the pupils are so much better prepared for the new work that they grasp it much more readily than otherwise, and before the end of the term the grade work is covered without any difficulty. Where the teachers proceed from chapter to chapter without any regard for previous work, the pupils are apt to sail along in a hazy atmosphere; and when taken out of their routine path, they do not know which way to turn.

Thoroness is, undoubtedly, one of the secrets of success. Indeed, I do not see how success may be expected without it. However, I soon discovered that the review as described does not in itself insure success. Failure in spite of its adoption may be accounted for in two ways. In the first place, the review may be formal, rather than thoro, and therefore lacking in the spirit that makes for success. Secondly, the teacher's work may be thoro without stimulating thought, and the results are not satisfactory unless the pupils are capable of independent thinking. Consequently, something else is required to assure success.

The next point to claim our attention, the qualifications of the teacher, natural and acquired, is popularly regarded as the controlling one; hence the adage, "As the teacher, so is the school." However, that the variations in the results cannot be accounted for by differences in the qualifications of the teachers is proved alone by the manner in which the results are distributed. Few will take exception to the statement that marked individual variations will be found among the members of every corps of teachers. Therefore, if teaching ability were the controlling factor, the extreme variations in results should be found in the different class-rooms of the same locality. But this condition does not appear in the table, where it is shown that in certain localities practically all the results were good, while in certain other cities practically all the results were poor.

It might be argued, in explanation of this circumstance, that in spite of individual variations, all the teachers of some communities are professionally competent, while in some others they are all incompetent. But this, again, does not accord with the facts; for if a line should be drawn across the table under, say, the seventh school, and the teachers of the communities above it compared with those of the localities below, no marked differences would be found. In all the cities represented some teachers may be found who have had both a high school education and a normal school training; some who have had a high school education only; some with much and others with little experience; some with considerable and others with little natural endowment. And as to care in selection, the most favorable conditions will probably be found in Cities IV and VI; and still these localities failed to reach the standard.

We have now exhausted the principal factors brought into play by the teacher, as we have those that belong to the pupil, and as yet the controlling element has not been found. If my investigation is to be rewarded, the object of our search must, therefore, be found among the elements brought into the problem by those employed to supervise and direct the work of the teachers. And the facts have led me to believe that it is here that the controlling factor exists. My conviction is based on the circumstance that, in every instance, a variation in the results appears to accord with a variation in a special phase of the supervision. If my interpretation of the facts is correct, we are forced to conclude that the results secured in the average class-room do not represent the ability of the average teacher, but the response to what is expected of her; so that, ultimately, the problem of results becomes a question of demand and supply. And my deduction is this, that the teachers will supply what their supervisors demand, provided the demand be placed within reasonable bounds. A deduction of this nature is by no means an unnatural one; for it is a matter of common experience that the services rendered by a set of employes are determined by the demands of the management rather than the efficiency of the individuals, assuming, of course, that due care is exercised to see that the demands are enforced. And the facts appear to show that, in this regard, the school does not differ from other institutions.

The leading pedagogical functions of the superintendent, under an ideal system of supervision, may, perhaps, be put down as five in number:

1. The preparation of the course of study.
2. The apportionment of time to the individual subjects.
3. Offering suggestions to teachers, during meetings and visits, as to methods of teaching and the treatment of children.
4. The establishment of demands in regard to results.
5. The testing for results to see whether the teachers are living up to these demands.

Let us now look into each of these factors and try to find the crucial point.

Owing to differences in educational ideals, the courses laid down for arithmetic vary considerably in different localities. Therefore, it may be argued that, from a comparative standpoint, the results obtained in different communities will depend upon the character of the test; that the pupils of a given locality might do well with one test and poorly with another, and *vice versa.* But, in the preparation of a test to be submitted to different localities, the objection may be allayed by bearing in mind the differences in the course of study, and, in consequence, rejecting all problems of a special character, while selecting from those belonging to general arithmetic, and which, therefore, come within the scope of every school.

The general verdict was that my problems were fair to all

Even in the localities that failed no exception has been taken to my test, which is in itself convincing evidence that the questions did come within the scope of every curriculum. Consequently, the differences in the results cannot be attributed to differences in courses of study. In some instances it was instinctively felt by superintendent and teachers that the pupils would fail, because the questions were presented in a form differing from that to which the children had been accustomed; and, as a rule, the predictions were verified. In other localities nothing out of the ordinary was found in the questions; and, as a rule, the schools did well. This did not indicate fundamental differences in ideals, but rather that the work of some schools was more routine in character than that of others; so that the variation in the results showed, primarily, that the pupils of some localities were more ready than those of others in the practical application of principles. In other words, the instruction had done more to stimulate thought in some instances than in others, without regard to fundamental aims.

Another point relating to the course of study also deserves consideration. It is, namely, that in some localities the ground is covered more rapidly than in others, and, therefore, that several of my problems may have come too early for certain schools. This would apply particularly to the seventh-year paper, which contained several rather difficult problems in percentage. To allay all doubts on this score, however, it will be simply necessary to discard the seventh year entirely and take the eighth year as a basis of comparison. But the differences in results in the eighth year were fully as marked as they were in the seventh; and as there was not a problem in the eighth-year paper beyond the scope of any eighth grade, this objection also became invalid.

The next point, the amount of time devoted to arithmetic, has been already considered, and requires no further discussion here to prove that this is not the controlling element.

The third point involves that feature of supervision which renders the superintendent an inspirer of teachers, and which, in recent decades, has been receiving an ever increasing amount of attention. In some localities this feature is carried so far as to convert the entire school system into a permanent training school for teachers. Here the superintendent is in constant communication with his teachers, thru general and grade meetings and visits to the schools; and when he is imbued with modern pedagogical ideas, his influence on the spirit of the schools is marked, and the atmosphere of the class-room assumes an entirely different character from that which prevails in the old-fashioned, mechanical school. The relation between teacher and pupil is no longer that of master and servant, but resembles rather the relation of parent and child. The spirit is governed by the idea that the pupil is an individual who can think, feel, and act, and not merely a passive recipient of facts. There are many localities in our country where the inspirational system of supervision has been carried to its logical conclusion, and where liberty without license prevails.

But the inspiration of the teachers by the superintendent is not the controlling factor in the accomplishment of results; for superintendents' meetings and visits have been as much in vogue in the localities that did poorly as in those that did well. Consequently, the inspirational element must also be eliminated.

We have now considered all the important factors except the establishment of standards and the testing for results; and these, strictly speaking, merely represent two sides of a single element. As I have already stated, the facts tend to prove that the results are regulated by the demand; and the latter, in my opinion, is represented by the character of the tests to which the pupils are periodically submitted. *This means, in other words, that the controlling factor in the accomplishment of results is to be found in the system of examination employed, some systems leading to better results than others.*

The test, however, has two different meanings, which must not be confounded with each other. In one instance, it is intended to determine the fitness of the pupil for promotion; while in the other its purpose is that of demonstrating the rate and character of the progress made by the class as a whole, *i. e.*, whether the teacher is doing satisfactory work. As the system of testing for promotion has been practically abandoned in every city examined, this factor is common to all, and may, therefore, be here disregarded. As a rule, the pupil's fitness for promotion is now determined by the character of his daily work, supplemented by the teacher's opinion, while the examination as to fitness is reserved for those pupils whose term work has been unsatisfactory or who appeal from the teacher's adverse judgment. *The controlling element lies, therefore, in that form of examination which is intended as a test of the teacher's progress.* The nature of this test varies in different localities; and, as the results appear to vary with its character, a detailed description is called for.

The tests of the teacher's progress may be conveniently summed up in four general classes:

1. Tests made from time to time by the teachers themselves. Each teacher formulates her own questions, marks the papers of her own class, and submits the results to the superintendent; but no tests are made by principal or superintendent.
2. Tests made in the same way by the teachers; but the teachers' tests are supplemented from time to time by those of the superintendent.
3. Tests made from time to time by the principals, each principal formulating the questions for his own school. The results are reported to the superintendent, but the latter does not make any tests of his own.
4. The same system of testing by the principals; but the principals' tests are supplemented from time to time by those of the superintendent.

The first system means that the demand is fixed by each individual teacher, who is made the judge of her own progress. As the questions prepared by the teacher, when left to her own resources, will naturally accord with the lines upon which she has been teaching, the tendency will be toward routine work. Under these circumstances, the minds of the pupils will be kept running in a groove, in which they may work with remarkable facility, but outside of which they are all at sea. In other words the pupils will be able to solve certain problems without any difficulty when they are presented in the customary way, but entirely incapable of solving them when they are stated in a different manner. I was once present in a class-room when a pupil was called upon to analyze a problem in mental arithmetic. He rose to his feet, but was silent. After the teacher had waited a little while, she said to the child: "Don't you know? That's the kind that begins with 'since'." This suggestion was sufficient to enable the pupil to go thru the analysis according to rule. Such methods as this will account for the fact that a class which will regularly obtain an average of eighty to ninety per cent. on the teacher's test may obtain less than twenty per cent. on a test such as my own.

The plan of limiting the tests to those of the teacher has been in vogue in City VI, and the results may be judged by a glance at the table. I could find no other element in this locality to account for the failure. In fact, in every way the conditions are here above the average. The home surroundings of the pupils are, for the most part, favorable; the classes are small; the teachers are selected with more than ordinary care; and the superintendent does his share from the inspirational standpoint. The only thing that seems to be lacking is the test from a broader point of view than that of the teacher. If the superintendent would inaugurate a system of examinations of a different order, there is little doubt in my mind that in the course of a year or two the results in arithmetic would be improved by at least fifty per cent. In City IV, also, the conditions are favorable, but the testing is not very systematic.

Under the second system, the degree of success seems to depend upon the nature of the tests prepared by the superintendent. If he should not demand anything beyond a fair knowledge of the term's work at the end of the term, and if he should have an eye to principles rather than ingenuity in their application, his tests may be as routine as those of the teacher, and fail to exert a stimulating influence. This criticism applies to City VII, where the second plan of examinations has been in vogue; and when my own test was here placed before the pupils, the result was chaos. The superintendent and teachers seemed at once to appreciate the nature of the difficulty; and they feel confident that if I should try their schools again, after giving them a little chance to wake up, they would be able to show much better results. In another locality, the principal of a school that failed attributed the failure to the routine character of the tests to which his pupils had been accustomed.

Under the third system, the tests are made by the principal, instead of the teacher, thus bringing into play a broader point of view than the first plan. It has the advantage that, in the first instance, it is not the teacher herself, but the principal, who is made the judge of the teacher's progress; but, lacking the superintendent's test, the system has the weakness of making the principal the judge of the progress of his own school. This indicates simply that the tests will represent the demands of the individual principals. The principal of a given school may be petty, and guided by the desire to make a good showing, or he may lack the proper perspective. In either case, the tests may run along routine lines, with an eye to grade work, and bring forth marvelous percentages from pupils who would fail completely on tests requiring independent thought. On the other hand, the principal may be a man of broad caliber, or an original genius, whose primary aim does not exist in the endeavor to show high percentages, but in stimulating pupils to use their minds. His tests will call for independent thought, and they cannot be passed unless the teachers have taught the pupils to think for themselves. The percentages brought out by his tests may not be nearly so high as those obtained in the school just described; so that, in the superintendent's records, his school may stand much lower than the other. However, when a test is applied which calls for thought, rather than form, his pupils will not be mentally paralyzed, and their previous training will tell. The eighth-grade teacher of the school at the head of the table—a school where the tests are made by the principal—told me that she did not think my problems fair, because they did not test the power of her pupils. She was not at all proud of them because her class averaged ninety-one per cent. She thought they should have done much better than that. And she was not inclined to change her mind when she learned that the eighth grade in many of the schools did not average thirty per cent. The principal of this school is constantly after the pupils, who are, therefore, at all times, ready for the unusual.

In localities where the principal is made the judge of his own progress, he becomes a very important factor in the school system. Indeed, in one sense, he assumes the functions of a superintendent. To this there can be no valid objection; for the superintendent, especially in the larger cities, cannot come into close touch with every class-room. However, under this plan the tendency will be toward the development of great inequalities in the different schools of the same community; each school representing the proclivities of its principal, rather than those of the city superintendent.

The fourth system differs from the third in this only, that the independent tests of the principal are supplemented once or twice a year by uniform tests prepared by the superintendent. Here the principal is not left entirely to his own resources, but, from time to time, is himself subject to a test. The advantage of this plan lies in the fact that it is capable of bringing to light the comparative progress of the different schools, which is not the case when the results reported to the superintendent from the various schools are based on tests of varying degrees of difficulty. The knowledge on the part of the principal that his school is to be judged by tests other than his own cannot fail to exert an influence on the nature of the tests prepared by himself, which will be guided by the character of those submitted by the superintendent. If the latter call for independent thought, the principals must see that the teachers will train their pupils to think; otherwise their schools will not be likely to make a good showing. Even under these conditions some of the schools will fail, because the principals themselves are not equally competent or equally ambitious; but the tendency will be to stimulate those who are ambitious, and who wish to stand well among their colleagues. Therefore, the best principals of the town will be likely to do better work, and among the less competent the number of failures will be smaller. This system of examination describes, in a general way, the plan in vogue in City I.

In the foregoing I have attempted to point out, first, why some schools succeeded in passing my test and others failed; and, secondly, what mode of procedure, according to the facts, is destined to lead to the most favorable results. However, I do not wish to convey the impression that I claim to have solved the educational problem. I fully believe that my data, tho comparatively meager, justify the deduction that, other things being equal, the results obtained by the teacher will vary with the demand, which simply shows a further application of a very well recognized fundamental law. Further investigations may prove that I am wrong, and that the controlling factor is an altogether different one.

But taking it for granted, for the sake of argument, that my deduction is correct, this does not indicate that I have really solved the problem. If we are willing to accept the statement that the results are controlled by the demand, we are simply carried to the threshold of another, and much larger, problem. Assuming the organization of a school system to be ideal, that is, that the principal is broader than his teachers, and that the superintendent is broader than his principals, then the deduction is logical that it is fitting for the demand to be fixed by the superintendent. This, however, merely leads us to the question, What principles shall guide the superintendent in formulating his demands? He must ask neither too much nor too little of his teachers. If he asks too much, the consequence will be a waste of effort in the attempt to do the impossible. On the other hand, if he asks too little, the pupils will not be sufficiently taxed to develop the best that is in them.

But how is the superintendent to determine the mean? Thus far no higher law has been recognized than that of personal opinion; so that all standards now in existence are purely arbitrary in their nature. Nevertheless, there is a higher law, and one which will have to be brought to bear on the educational problem, if permanent progress is looked for. The law is this, that the demand must be based on the normal mental capacity of the child, that is, on a knowledge of what the average child* who has been well taught is capable of doing in an individual branch, at a given period of school-life, when a given amount of time has been devoted to that branch. This is not a question of opinion, but a question of fact, a problem whose solution depends upon extended investigations.

If we look over the pedagogical field to get our bearings from the standpoint of the mental capacity of the child, we can find as yet no definite landmarks to serve as guides in the establishment of standards. Under these circumstances, the superintendent's demands cannot be representative of anything more definite than his personal opinion—a condition that must necessarily prevail until a more or less substantial literature on the child's capacity has been developed. In the meantime our educators must resort to expedients; and, for the present, the wisest course, it seems to me, lies in the adoption of a system of examinations as outlined in plan number four.

However, the mere inauguration of a fruitful system of examinations does not itself insure success. As I have already stated, the nature of the results will be determined, for the most part, by the character of the tests prepared by the superintendent. If the problems do not call for independent thought, and if they can be solved without any difficulty should the teacher have devoted her entire attention to drilling the pupils in the work of her own grade, then the tests of the principal will follow this lead, and the examinations will be as routine in character as those which are made by the teachers themselves, in accordance with plan number one. To be of the highest value, the superintendent's questions must be suggestive and stimulating, both to the principals and the teachers. They must aim to take the latter out of the groove, and be so formulated that they will call for a thoro grasp of the entire subject as far as the pupils have advanced, as well as a readiness on the part of the latter to comprehend a problem that comes within their scope, regardless of how it is stated. When I say that the standard implied by a test of this nature is not an impossible one, and that its attainment is purely a matter of training, I am not merely expressing a personal opinion, but I am speaking from actual facts—as witness, in the table, eighty-one per cent. against eight in the seventh year, and ninety-one per cent. against eleven in the eighth.

---

*Recognizing that no two individuals are alike, some educators take exception to the term "average child." However, there can be no objection if we accept it in a figurative sense, taking the class as a unit.

A further illustration of the same fact was given when I submitted an apparently simple, but rather puzzling, little problem to the pupils of the eighth year of a number of schools. In one instance, where the pupils had failed on my general test, the class average on this little problem was ten per cent. only. I asked the teacher how she accounted for the failure, and her reply was: "Children don't think." If she had spoken more truly, she would have said: "These children don't think," or "My pupils have not been trained to think"; for, in another instance, in the school that stood first on my general test, the class average on the same problem was as high as sixty per cent. It might be argued that, perhaps, in the one school the pupils had previously had problems similar to the one I gave, while in the other they had not. This is just the point. If not, why not? In some schools it is difficult to find practical problems that are not in line with previous work; and, therefore, almost any practical question seems quite familiar to the pupils. But in other schools the pupils seem to be able to look in one direction only, so that questions from other points of view represent to them merely so many Chinese puzzles.

The conclusion that the controlling factor in the accomplishment of results is to be found among the duties of the superintendent may be open to the criticism that I started out with a theory, and that, in interpreting my data, I was influenced by the desire to prove my theory—a form of criticism to which investigators are not infrequently subjected. However, to this charge I must enter the plea "Not guilty." That I have had, for some time, a rather strong leaning in a certain direction, I will not deny. But my belief was that the variations in the results were due, primarily, to differences in the personality and qualifications of teachers—a theory which the facts compelled me to abandon. And I did not see what I now believe to be the controlling factor until every element I had mentioned had been critically examined and found wanting.

* * * * * * *

In January, 1892, after spending considerable time in studying the school systems abroad, I entered into an agreement with *The Forum* to visit the schools of our own country, and to prepare a series of articles embodying my observations. I started out early in January of that year, and traveled continuously for over five months, during which time I had an opportunity to visit schools in session in thirty-six cities, and to consult a large number of superintendents, teachers, and others more or less directly interested in education. At the end of that period I felt that I was ready to express some opinions, and the publication of my series began in October, 1892, and did not close until June, 1893.

It was not my purpose at the time to study the results of instruction, but rather the spirit of the schools. I had long believed that elementary education should take into account the normal activities and interests of the child; that the latter should be introduced to the beauties of nature and art; and that he should be as free in his school-spirit as orderly development would permit. From the standpoint of spirit and breadth of curriculum, I found all sorts and conditions of schools. In many localities, the sitting-still school, with all its mechanical appurtenances, still flourished; in some, the endeavor to break away from the old-fashioned, mechanical grind was in evidence; and in not a few instances I found localities where my idle fancies had been more than realized.

The most striking feature of my observation was the fact that, from the standpoint of spirit, any one school of a given locality was, broadly speaking, representative of the schools of its locality as a whole. When the repression of the child was found in the first school that I visited, it was found in the other schools as well; and, in the same way, when in the first school I found spontaneity, it was an indication that I should find freedom in the other schools also. This was strong evidence to the effect that the spirit of the schools of every locality must be controlled by a central authority; and the accumulated data led me to the conclusion that the tone of the class-room was representative of the personality of the superintendent, provided he had charge of the schools long enough to make his personality felt. And this conclusion, I believe, has stood the test of time. The term superintendent is here used in the larger sense, which includes the members of his staff.

From the deduction stated the inference is natural: "If the superintendent is responsible for the spirit of the schools, why is he not also responsible for the results?" If the superintendent wishes to develop a good school spirit, it is necessary for him to work for spirit. If he is desirous of accomplishing results of a high order, it is necessary for him to work for results.

In view of what I have said, the aim of supervision is clearly a double one. In the first place, the superintendent must see that a wholesome spirit is developed in the schools; and, secondly, it is also his duty to see that due attention is paid to results. This again gives rise to an important question: Is it possible to keep the results in view without at the same time crushing the spirit? Or, conversely, Is it possible to develop a delightful class-room atmosphere without at the same time destroying results?

Judging by my own impressions, acquired by a twofold study of the question, spirit and results are in no way incompatible. The criticism aimed at the modern school spirit, that it means a milk-and-water system, a weak sentimentality rather than mental discipline of a wholesome kind, does, perhaps, apply to the schools of those localities where the mere utterance of the word "results" is looked upon as sacrilegious —schools that are in a transitional stage, just emerging from an antiquated system, and not yet accustomed to their new surroundings. But the criticism does not apply to localities where a good spirit has already become an established fact, and additional aims can be held in view without losing sight of the fundamental proposition. In itself, a good school spirit does not indicate weakness any more than a poor spirit is an indication of strength. In some of the delightful schools, it is true, the results are by no means praiseworthy; but, on the other hand, the results are frequently of a very inferior order in typical schools of the antiquated kind.

There is, indeed no logical reason why results may not be kept in view without in any way neglecting the spirit; for "subjects" are taught in the modern as well as in the antiquated schools, and the time devoted to the formal studies is, in most instances, ample to lead to satisfactory results. If the modern idea should stand for the abandonment of the three R's, it might be deemed unworthy; but it does nothing of the kind. The matter simply resolves itself to a question like this: "All other things being equal, will forty-five minutes a day devoted to arithmetic in the schools in which the pupils are active and responsive accomplish as much as forty-five minutes devoted to arithmetic in the schools where the pupils are repressed and passive?" The facts compel us to answer this question in the affirmative. Therefore, there is no reason to doubt that a good school spirit and satisfactory results may without difficulty go hand in hand. J. M. Rice.

The Making of a Program for Rural Schools

MAY I say a word by way of introduction? It is pertinent to my subject. I have talked to a good many teachers of country schools, both in meetings and out of meetings, and I have nearly always been met with this criticism: "That's all right, Mr. Dickson; theoretically what you say is irrefutable. It would probably work well in a large graded school in Hartford or New Haven; but you don't know the conditions up here." All of which is a polite way of telling me that I don't know what I'm talking about. In defense I have to say, that I spent the first nine years of my school life in a country school; that I began my teaching in a country school of sixty-eight children, whose abilities ranged from a tardy recognition of A B C to proving the "theorem of Pythagoras"; that I was for four years a superintendent of country schools; and that I know, more or less intimately, the country schools of five States. What I have to say is not wholly things I have read or dreamed; but in some part, things I have seen.

I know that there are good country schools—schools which compare favorably with many rooms in city schools. But I do feel that as a class, the ungraded schools are not doing all that could be wished. I do not undervalue the work of any school, nor do I underestimate the effort of any teacher, but if what I have to say is to be worth while, I must present things in their true aspect. I may say things that seem severe, but they need to be said, and I think you will appreciate their fairness. My desire is to be constructive, rather than destructive, and yet I want to build on a scientific basis. I hope to suggest some ways in which you may do better work in your own particular school.

Let us start by asking ourselves four questions:

Is a program a good thing?
What objections are there to it?
If it is desirable, how shall it be made?
After it is made, what shall we do with it?

The need of a program is so obvious that it would seem unnecessary to discuss it, and yet there are so many teachers in country schools who for one reason or another do not have one, or having one do not use it, that we must stop to find out why.

The most common objection I have heard urged against it is that it *doesn't work*. Of course it doesn't. I am not going to attempt to prove that a program is a piece of automatic machinery which starts itself at nine o'clock and stops when the sun passes the meridian. I don't know whether your criticism is a criticism of your own particular program, or of your own particular method of handling it. In either case I feel that it fails for one of two reasons—either it is a bad program, or it is badly managed. Your statement is not an argument against a program, but a confession of your own weakness.

I have heard teachers say, "I can't have a program because I can't plan my time. I don't know how much time my arithmetic is going to take. Sometimes I can do it in ten minutes, sometimes I need an hour. Some lessons are more difficult than others. Some are long, and some are short." Suppose you were a special teacher, and went into ten or fifteen rooms a day. Do you think the regular teachers would expect you to begin and stop on time, or would they give you a smiling welcome whenever you happened to "get around"? The assertion that you can't plan your time is not really what you mean. To be quite candid with yourself you should put it: "I don't want to plan my time. It suits me better to drift along. If I have no language lesson prepared, I can just fill up the time with a few extra examples in arithmetic. I could not do that so easily if the program were there on the board, staring me and the children in the face. Besides I feel somehow above being tied to a paper which says I must begin or I must stop at such a minute. I am a monarch here in my little kingdom, and 'the king can do no wrong.'" In reply to which I would say, "The mere fact that your arithmetic lesson takes ten minutes to-day and an hour to-morrow shows me, and should show you, that you *must* plan your time. You are no monarch, but a most subservient subject of your queen, Caprice. Planning your time is as much a part of your work as planning your lessons is. If you are a trained teacher, that should have been part of your training. If you are not, you should, from your observation of conditions around you, see the necessity of planning. When the lessons are easy you may go faster; when they are hard, you must go more slowly. Your problem becomes intensive rather than extensive. Your arithmetic is entitled to a certain proportion of your day. How to use all that time and no more, how to plan a lesson that will fit the period in which it must be given, is the question that your program will make you face.

Another teacher says, "There's too much to do. I can't take time to fuss with a program. I must take things when I can get them." It has not occurred to this young woman that the more Christmas presents she has to buy with a certain amount of money, the more carefully she must spend that money. I once knew a good Irishman, who, when painting a fence at such a high rate of speed that the paint flew in all directions, being asked the cause of his extreme activity, replied that he wanted to finish the fence before the paint gave out. It would seem to be clear that the more there is to be done in a given time the more necessity there is for economy in the use of time. So I would say to this teacher, make a program, and many of your woes will depart.

Still another objection—and this is the objection of the intelligent, thoughtful teacher—is that strict adherence to a program day after day, is monotonous; that it reduces the day's work to a dull and stupid routine. So it does reduce it to routine. We all sigh for relief from our slavery to time. We should like to go in and out at will; to work when the mood is on, and to play often when we now work. When some of our contemporaneous political agitators have applied their economic panaceas, we shall doubtless live in sweet content, always doing the most delightful thing. Until then most of us will probably continue to find that "the day returns and brings us the petty round of irritating concern and duties." It may be monotonous for an engineer to pull his train out of the station at the same time every day, but I am sure that the traveling public prefers this plan to starting it at odd times for the sake of variety. On shipboard the time is divided into watches, and the men stand their watch as regularly as the time comes around. Operatives in factories doubtless find it tiresome to do the same small piece of work in the same way day after day. But the men who manage great industries know that this is the most profitable way to conduct their work. Men who handle skilled labor believe in regularity. Only artists are free from the binding cords of time, and many of these work as regularly as factory hands. It may be monotonous to eat at certain times every day, but it is a monotony that most of us are able to endure, and some of us even to approach with alacrity year after year.

What I am trying to show is, that most of the ordinary work of life is finally reduced to a routine. And the sooner children become aware of this fact the better. Nor need this process take any of the joy of living from any childish heart. I find that the eternal desire for something new, for a "revival of interest" on the part of school children, and also of older people, is a direct result of not having learned the value and pleasure of doing in a cheerful, painstaking, and expeditious way, the comparatively few kinds, but ever-recurring tasks that come to all of us. So long as we live under present day conditions, the argument of monotony cannot prevail.

It seems to me that the chief failure of the country school is the failure to train. In its children, from habits of person to habits of thinking, can be seen the same careless tendency; the tendency that ruins work and kills ambition. The loose habits of generations are manifest in these children. It makes the teacher's task the harder, but I plead with you, because it is hard do not neglect it. I regret to say that most country schools not only do neglect this task, but they foster the habits they should be correcting. The haphazard, happy-go-lucky, hit-miss-or-go-by sort of existence of many of them tends to make shiftless farmers and unskilled workmen.

A knowledge of the facts of physics involved in skating will never enable a boy to skate. Boys learn to skate just as they learn to swim or to read—by doing it. You may talk to a boy for a year about being thrifty, and in all probability your talk will facilitate nothing. If you want a boy to be thrifty, just see that he is thrifty. If you want him to be systematic, see that he is systematic; and he will see the value of thrift and system, and as he grows into all other habits, so will he grow into the habit of order. This I take to be the first great work for the country school (or for any school) for habits are more important in education than many lessons learned from books.

A program, then, is essential, that all subjects and all pupils get a "square deal." Without a definite program, the teacher who likes arithmetic and dislikes history will be likely to steal for arithmetic and rob history. The teacher who likes to work with the older children may let the little ones slide and devote herself to those who can best do without her. A is entitled to *so much* of your time. He must have it. The subjects B and C are entitled each to its share of consideration. They must have it. There is so much to do and so little time in which to do it, that the strictest economy in the use of the time is absolutely necessary. A program is a time-saver and a conserver of strength. Teachers and pupils know *what* is going to happen, *when* it is going to happen, and plans are made accordingly. Therefore when it gets dark the lamps are trimmed.

Making a program is, after all, only another way of saying making a plan, and we all know that the day of the planless teacher has passed. Why she has been tolerated as long as she has been is hard to understand. And if plans are a help to good work in any school, surely there is no school in which they are such a crying necessity as in the ungraded school. It needs no argument to convince anyone that the average country school requires too much work on the part of the teacher and quite as often too little on the part of the pupils. Argus would have needed all of his hundred eyes to superintend successfully the numerous and varied activities being carried on at any moment in most rural schools. A merely human teacher cannot do it, and it is a fact that unsuperintended activity is more than likely to become unprofitable activity. Those children who labor undirected soon become weary. They find themselves surrounded by opportunities for mischief, which, their spirits being weak, they seldom fail to improve. Any plan, any device, which will enable the teacher to know that every child in the room is provided at any minute with suitable occupation, that he has *definite* things to be accomplished, and for which he will be held responsible, will surely help her to breathe more freely as the day wears itself away.

The program in most rural schools is a formidable affair, with thirty-five or forty recitations, each treading hard upon the heels of its predecessor. I have seen large portions of the already scanty blackboard space given up to it, and have sat, lost in wonder, if not admiration, as the teacher carried first one group, then another, thru the double quick evolutions which the orders of the day called for. I must admit that in some cases the program was rigidly adhered to, and if there was ever any doubt in the teacher's mind as to the value of a five-minute period in which to assemble a class, test the study she had assigned, expound a new topic and assign more work for the study period which must follow while a new class is being put thru its paces—if, as I say, there was ever any doubt in the teacher's mind, it was entirely obscured by the burning light of achievement as she rounded up her charges at the stroke of twelve, without a minute "lost, strayed, or stolen."

I need not say that such a program does not always produce such a result. I recall one teacher in whose room I sat thru a long, weary forenoon, some years ago. She had a program, equal to a New York Central time-table, "posted conspicuously," according to orders. I don't remember what the program asserted would be done between the hours of nine and twelve, but I do remember what was done. A few minutes after nine the morning music lesson began. It was seventeen minutes of twelve when it dragged itself to a lifeless close. A cautious inquiry on my part led to the statement, "We always have to leave out something. Sometimes it's one thing—sometimes another. And so sometimes we have to make up." I knew a teacher once who, following this plan, "made up" twenty-four drawing lessons in a single forenoon, but I should not recommend this feat as a regular practice. It is bad enough to waste energy following a bad program, but to have a program which, because of its inadequacy, or your lack of effort, is habitually not followed, is ashade worse. In schools where such conditions prevail, shiftlessness makes rapid progress.

Any cause which produces such effects as these I have tried to show you should become at least a subject of serious contemplation. And to bring the matter at once to a practical basis, is there no way in which the number of recitations a day in your school may be reduced, without loss? Without loss in this case of course means with profit, since any saving of energy, of nerve force, any lessening of the "lightning change" attitude on the part of the teacher must be a gain both to her and to her pupils; while on the other hand, an apparently less impossible task would surely have a brightening influence upon her sister of the slower going type, and would be likely to secure on her part an effort to get thru the day's work.

I am aware that I am treading on uncertain ground when I ask, "Must you have so many classes in your school?" Close grading is, I know, the fashion of the day, and under favorable conditions it doubtless brings us nearer to our ideal of work. There are some things, however, which can be done in large schools but cannot be done in small schools. There are some things, too, successful in small schools which are of doubtful advantage in the school under one teacher, even if they can be done. To my mind, the attempt at the closest grading belongs to the larger school. The breaking up of the teacher's time into thirty-five periods must be balanced by some unusual gain, it seems to me, or the final result is loss.

In these days we are consolidating rural schools with good results. Where this is impossible I believe the principle may be applied in a degree in a single country school. We consolidate schools, as I understand it, not so much for the closer grading we shall secure as that we may obtain for the child more of the teacher's time for his grade—and so for him—than is possible in the ungraded school. With this in mind, let us, so far as we can, apply the same principle to our rural school, which for the present at least must pursue its solitary way.

As an instance of what I mean by applying the principle of consolidation, suppose we take the daily spelling lessons. Do you have six or eight spelling lessons on your program? Do you have even four? Are you quite sure that you need so many? Are words, as well as children, necessarily so closely graded? There are, I am willing to grant, certain words which are needed in the fifth grade, and for which the third grade child has no use. Says Fred on his geography paper, "We should always have equal days and nights if the earth did not revolt." Also, "A volcano is a burning mountain that has a creator." Clearly the author of these interesting statements needs some special attention to geographical terms. But such words are only a small part of the whole number taught, and an occasional lesson will suffice for them. For the rest there are many words equally suitable and equally necessary to all children above the fourth grade, as well as others that will provide material for grades from second to fourth. Assigning spelling lessons is always a process of selection; we cannot hope to teach all the words there are. Therefore we must choose, and I feel sure that you will agree that our choice must be to a certain degree arbitrary. May we not, then, combine two or more of our spelling classes, thus reducing the teacher's time and giving her a few precious minutes for some of the crowded subjects which need teaching time?

A clear understanding of what we expect to do in a lesson period will help us of course in determining how much time we must give to it. If recitations are simply test periods, then our problem is comparatively simple. That the tendency in country schools toward an endless succession of test periods is strengthened by the multiplicity of classes and recitations is undoubtedly true. And this is the tendency that robs the children of their inherent right in their school work—the teacher's help and guidance. Can it not be made possible for the teacher in the rural school really to teach, or must she content herself with the unenviable position of a task-mistress, setting many tasks, calling up her classes from time to time to see how well they have done these tasks, and then setting more. Where in this process is the formative influence which we believe it is the teacher's highest duty to exert upon her pupils? What are these children learning of the way to work, the way to think, the way to study, which come to most children only as they work *with* a trained mind day after day and week after week. There are no facts in geography or history or mathematics which can compensate a child for his failure to gain the right habits of thought and study.

It is true that our children must learn self-reliance. They must learn to work alone. But they can learn this only when they know how to work, what to do, and how to do it, only when they have learned to pin their thoughts to the subject in hand, not to dream and drowse over a book and think they are studying. Therefore I would say, find time to teach Tom and Dick and Harry how to do the work you require of them—how to think out a problem in arithmetic, or a political situation in history, or the probable result of certain climatic influences discussed in their geography class—teach them to marshal their straying thoughts in orderly array—teach them to write or to tell what they think in clear, clean-cut English, and you will have done them an incalculable service, even if they do fail to "cover" quite so many pages of geography or arithmetic as they might otherwise have done. Suppose Tom and Dick and Harry do happen to be eleven and thirteen and fourteen. Suppose that Dick has had decimals while Tom has not. Suppose that Harry does know all the parts of speech and Tom knows none of them. There are some things, nevertheless, in which they can work together, and in these "some things" you cannot afford to work with them separately if working with them separately means giving them a fraction of the time they need—means setting tasks instead of teaching.

There are ways and means of accomplishing the end I have in view without violating the conventions of your school and neighborhood. Tom may still be in the fifth grade, and Dick may in lonely glory compose the sixth. Tom may study Europe, and Dick South America, if the law requires it. But there is no law against their doing at least part of their work on these continents simultaneously, and your geography period may have double time if they do. And all of this is equally true if there are six Toms and half a dozen Dicks. Under your directing eye they may, each for his own continent, look up facts of position, climate, drainage, etc., they may work out the problems attendant upon these facts, they may arrange and record them. Then, when you turn away to the next group, you mayl eave the Toms and Dicks with something to study that they understand, and upon which you may to-morrow test them with a clear conscience—for you have taught it. You have not merely assigned a lesson to be learned, as you would probably have been limited to doing had you worked with each of these classes by itself, with half the time. This is merely an illustration. Other ways will occur to you by which you may escape having your time chopped into fragments practically unavailable, unless for a sort of mental hash.

It is a perfectly obvious fact that the rural school program is necessarily a more complicated affair than that of the graded school in town. If you are so unfortunate as to have in your room five or six grades, your program must account for every one of those five or six grades thru all the changing periods of the day. And this is no small task. Now I propose that in order that we may be sure that we are looking at the subject in the practical way which we promised ourselves at the beginning, we go thru the actual work incident upon the making of a rural school program.

Assume, if you will, that the term is beginning, and you, a stranger in a strange place, are face to face with the problem of classifying children, apportioning their time and your own, and reducing the whole situation to paper in the form of a program.

If your predecessor has left you any written testimony as to the condition and personelle of classes, you are fortunate. But, strange as it may seem, you will probably not only fail to find any such record, but you will fail to find any one other than the children who can give you any light on the question. So you are confronted with an original problem. It seems to me that if you must go back to the roots of the grading question the best basis for classification is the study that touches the life of the children at the most points—reading. After reading we may consider arithmetic, geography, and history, in the order named. When you have arrived at some sort of rough grouping in each of these, it is time to strike a kind of general average of attainment, and count up your classes. We must not lose sight of the fact that some children who are in perhaps the third grade in reading may be in the fourth or even the fifth grade in arithmetic. This fact must not cause you worry. This is a peculiar advantage of the ungraded school. It affords individual adjustment, and you have now brought about the close grading for which school authorities are clamoring. Having thus grouped your children, you have completed the first step in program making.

The next step is to apportion your time. Go at it in a purely mathematical way, to begin with. You have sessions from nine to twelve, and from one-fifteen to four. Taking out ten minutes for opening exercises in the morning, fifteen minutes for forenoon recess, and ten minutes for afternoon recess, you have left five hours and ten minutes available time for work. You must next find the number of recitations you need (or perhaps better, hope), to make room for. Count up the number of grades in which each subject occurs, and add these results together to find the number of periods you must make. Using this number of periods as a divisor, divide three hundred and ten minutes by it, obtaining as a quotient the average time to which a single class is entitled. The result will be discouragingly small, just as the result when you found the number of required periods was probably discouragingly large. And it is just here that you must apply the pruning knife. You have more classes than you can possibly handle to advantage. You must, therefore, consolidate. That is, some of these classes must double up.

Subjects whose intelligent study must depend upon the previous acquirement of knowledge pertinent to those subjects must of course be exempt from the doubling-up process. History is such a subject. So is arithmetic. Subjects which will submit to the process and lose little, if anything, are reading, writing, spelling, geography, and English. In reading, for instance, you can probably improve your program by having half as many classes as you had at first mapped out. What is good for third grade reading is probably good for fourth. Unite the classes for oral reading. Then, if you have material, assign special silent reading, which shall be suited to the needs of the individual. The union of spelling classes has already been discussed. I think it is safe to say that three spelling classes are all that are required for the whole nine grades. The number of your classes should be reduced, I should say, to at most nineteen for the whole nine grades. And even then you may reduce still more by working occasionally with two classes at once, as we suggested a few minutes ago in the case of Tom and Dick.

Another expedient is to reduce the number of lessons a week in some subjects, thus giving you a chance to alternate with some other subject similarly cut down. When you have reached the number of recitations finally decided upon, you may work again the average time for a class. Then, since some subjects are more important than others, and since some classes or grades, because of their nature, demand more time, any attempt at equal division must fail. Your problem has become one of ratio. As a general statement I should say that an arithmetic lesson needs about three times as long a period as a spelling lesson. History and geography seem to be about equal in their demands, but are ordinarily given less time than arithmetic. My own feeling in the matter is that we should do well to have more history and geography and less arithmetic. Not that we want any less knowledge of arithmetic than we now have, but that we could do with fewer phases of it.

English should come in for a liberal share of the time. It would seem a sad condition of affairs when children arrive at the age of fourteen or fifteen and have developed no medium of communication by use of which they can ask for exactly what they want, or make a clear, concise statement of their thoughts and feelings.

Having settled the question of apportionment it now remains to determine the order in which things shall be done. Is there any logical order, or do people who make programs just make a list of exercises? It would seem to be wise to tackle the most difficult subject when the mind is freshest. That subject is arithmetic, and the time is the first thing in the morning. So put arithmetic down first. A point to be kept in mind is to get as much variety into the succession of subjects as possible. A spelling lesson might well follow arithmetic. The break from mathematical thinking is decided, and therefore restful. Again, the spelling is a short period, following a long one. You will have several classes in each of these subjects, and by the time you have worked them off it is doubtless recess time. Begin recess on time and end it on time—fifteen minutes from the time you stop work until your children are back in their seats and ready for work again, is all the time you can afford. I want to say a word in regard to recess. A recess is a hygienic necessity. It is the children's time. I find among teachers a general tendency to keep children in from recess as a punishment for failure to do work or for misdemeanors in the school-room. There is one legitimate reason, and but one, for depriving children of their recess, and that is because they abuse the recess privilege. Some other method of punishment than taking it away must be found for all offenses which are not direct offenses against the recess privilege. One thing more—I have never been quite able to understand why children who attend a country school, situated probably upon a hill, with a prospect broad and beautiful, surrounded by God's woods and fields, should prefer to spend the recess period in a room full of foul air and unpleasant odors rather than to get out into the fresh air and vitalizing sunshine. Nor do I understand why a teacher who has any sense of responsibility as to her children's physical well-being, should allow here pupils to remain indoors and to occupy themselves in eating pie and cake when they should be filling their lungs with oxygen rather than their stomachs with indigestion. Any teacher who does this is failing more seriously than when she does poor work in arithmetic or spelling.

Now that we have gotten thru the recess we may return to the program. Don't have a penmanship lesson or any written work immediately after recess. Why not? Because, if children have been spending this period as they should, they have been playing—playing vigorously, and consequently their nerves are shaky. Good written work cannot be obtained at this time. Again they are now refreshed, and are ready for another subject which demands close attention and the exercise of thought.

Before taking this subject, however, a five-minute general exercise will be found beneficial. It will serve as a gentle quietus, which will enable the children to gather themselves together, and to reduce their mental faculties to working order. Following this, geography, history, or English is a "logical candidate" for consideration. For the last period in the morning, try to take a subject which demands less mental effort. This is a good time for a writing lesson.

To begin the afternoon, I should spend from three to five minutes in some form of general exercise. This will serve the purpose of getting the children once more into a "judicial" frame of mind. This is a good time to read to them, or to teach them some poem—not a rhyme—but a bit of poetry. Of course opinions may differ as to what is real poetry. I once knew a teacher who had what she called "the digestive poem." This "poem" began with the food, taken into the mouth, described the course of that food thru all the processes of digestion and assimilation, and closed with a touching appeal for thoro mastication. I am myself a believer in thoro mastication, but I suggest that there are subjects that will lend themselves more readily and more beautifully to poetic treatment than the processes of digestion. Try "The Last Leaf" or Shelley's "Cloud"

> That orbed maiden with white fire laden
> Whom mortals call the moon
> Glides glimmering o'er my fleece-like floor
> By the midnight breezes strewn.
> And whenever the beat of her unseen feet
> Which only the angels hear
> May have broken the woof of my tent's thin roof
> The stars peep behind her and peer.

Whatever you do, whether you read to the children or they recite to you, make the time a pleasant one, and spend it on some of the real things of literature.

You should now plan to dispose of the most difficult subjects left. Save the reading, except of the primary children, for the last part of the day. We should now have provided for all the recitation periods. It remains to provide for the children during their study periods, when other classes are reciting.

Seat work is sometimes planned with less care than recitation periods. Thus we need adduce no facts to prove a mistake. Few grammar school children of any age can deal successfully with the problem of disposing profitably of a study period. They often find it hard even when their work is already planned. It is usually true that work assigned to follow the class recitation is done better than work designed to prepare for the recitation immediately to follow. It is true also that such things as spelling or memory work of any kind may be learned in a measure, temporarily, just to last thru the requirements of the coming test, and be of no permanent value whatever. Therefore it is not wise to arrange a program after this fashion—study spelling, write spelling, study language, recite language, etc. Yet I have seen such an arrangement many times; in fact, I should say it is the prevailing one. I should recommend spelling study in the afternoon, with your test work the next morning. The same plan will work well with other subjects. Let a geography recitation be followed by geography study, the pupils preparing themselves for the next day's work. So far as possible, it is best to assign definite work to be done, rather than to give the command "study to-morrow's geography." Vague orders engender loose interpretation and an evasion of responsibility. Also, whenever possible, plan the seat work to follow a recitation when you plan the lesson itself. In that way you will secure a logical dependence of the study upon the facts considered and recorded during the recitation.

Our program, as we said before we began to make it, is a somewhat complicated affair. But a persistent effort to reduce its component parts from chaos to order, to remove conflicts, and to have on paper a definite plan for each child's time thruout the day, will be repaid by a serenity in your school-room such as you cannot otherwise know. Three of the questions with which we started our discussion are now disposed of. The fourth remains. "Having made it, what shall we do with it?" First of all, I should say, make a careful copy, and place it in a convenient place for frequent reference. Don't try to carry all the details of work for six or eight grades in your mind. Next, have all the children above the third grade make copies of the part of the program which refers to them, and place it where they can consult it when necessary. This helps to fix responsibility. Do not give up your blackboard to your program. You need it more for other things. And last of all, when these other things are done, and your program is finished, just *use it*. I do not mean that your program should become a sort of fetich, or that it must always be your first consideration. I do mean, use it as the engineer uses his schedule, as the easiest and best way of getting where he is expected to get, with the least loss of time and the least possibility of accident.

The teacher's life is at best strenuous, trying, and often thankless. That she may render real service, she must have a high ideal, and yet when she has put forth her best effort, she must learn to be content. She must so order her work that her mind may be free from irritating and exhausting conflicts and discrepancies. A well-arranged and well-managed program will go far toward removing these annoyances, and will give you a peace of mind which, until you have once enjoyed it, you cannot begin to appreciate.

Willimantic, Conn. G. W. DICKSON.

Giving as a Fine Art

There is craft in the manner of giving a keepsake of which a true psychologist can avail himself. To give impulsively, dramatically, picturesquely often ensures remembrance of the presentation by an appeal to the subconscious reflexes of thought. Tear the chain from your neck in a mood of magnanimity and give it with a divine impulse, and you thread it with jewels brighter than the stars. Hide the ring under her pillow so that she shall find it, when, languid and susceptible, she prepares for dreams, and you give her a living poem she cannot forget. Does all this seem cold-blooded and premeditated? Perhaps; and yet so are memories coerced,—so are the links riveted upon the lovely fetters of friendship. We give more than the gift when we give a piece of throbbing life. We give an event, not an episode; we give an immortal excitement. And indeed, such gifts are themselves keepsakes, tho we attach to them no concrete object for a symbol. He who makes things happen is never forgotten, and she who punctuates life with memorable emotions lives for aye. Consciously or unconsciously done, these are the ways in which nature herself is tricked, for we do but play her own game. All's fair in love.—GELETT BURGESS, in the December *Atlantic*.

Apperception and Its Relation to Other Mental Processes

V. History of the Idea of Apperception*

1. LEIBNITZ.

THE man who first applied the term apperception to a mental process was Leibnitz, born 250 years ago. He is, however, inconsistent in the use of the word. At one time it means inner perception or consciousness. The soul perceives and knows that it perceives. There are also subconscious and unconscious impressions, like the noise of a mill to which we become accustomed, or the perceptions formed during a swoon, stupor, or sleep, which we do not remember, because they are too weak. They are not apperceived. In another place, apperception is made to include the inner connection of ideas, the necessary truths of science, and the divine plan of the universe. This is nearly equivalent to what Joseph Baldwin calls *noumenal perception*, and Brooks *intuition*.

2. KANT.

The soul of man is attacked from without by myriads of forces acting upon the sense organs. These separate impressions do not of themselves give one a knowledge of things. There is no external reason why the taste, the touch, the weight, the smell, and the color of an apple should be perceived as one thing rather than as five. The reason why sensations are combined into a unit is in the mind itself. And the spontaneous power that performs such synthesis is called by Kant apperception. According to Leibnitz, apperception is the fruit of an extensive development of the soul; according to Kant, it is a native power, antedating all experience, and not at all founded upon well-arranged contents of the mind.

---

*The facts here given are taken chiefly from Lange's "Apperception." Heath & Co., 1894.

3. HERBART.

Herbart also starts with Leibnitz's idea that weak perceptions are built up into strong ones by means of apperception; but he gives a much more thoro analysis of the process, and first clearly formulates the principle that new impressions can only be apperceived by means of ideas already in the mind.

The difference between Kant's idea of apperception and Herbart's is that Kant regards it as a power of the soul, and Herbart as something that occurs in consciousness but is caused by the nature of ideas themselves. When food enters the alimentary canal it is attacked by the digestive juices and fused by being dissolved. This might represent Kantian apperception. The digestive organ is the cause of the change. It is the synthetizing power which modifies the nutritive elements and afterwards assimilates them. Herbart's apperception is more like a chemical union that occurs in a mortar. In this case the elements unite by reason of their own mutual chemical affinity, and not thru a third agent. The mortar is consciousness, the elements are ideas, and the synthesis of the elements is apperception.

4. WUNDT.

This famous German psychologist has made the first part of Leibnitz's theory his own; namely, that the development of weak ideas into strong ones is the essence of apperception. Wundt explains the process by means of terms and images connected with vision. The eye has a point of clearest vision, the fovea or yellow-spot, upon which objects must be focussed in order to be distinctly seen. Objects in other parts of the field of vision are indistinct in the direct ratio of their distance from the fovea. So there is a field of consciousness with a mental fovea, which Wundt calls the *blickpunkt*, or point of clear vision. At any moment we are distinctly conscious of the particular thing upon which we focus attention, and indistinctly conscious of many other things. Now, whenever we wish to apperceive a thing we must bring it to the conscious *blickpunkt*, just as, in order to see an object under the microscope, we must bring it into the focus of the lenses.

According to Kant, apperception is a process due to a spontaneous activity of the soul. According to Herbart, also, it is spontaneous, but the spontaneity is in the nature of the ideas rather than of the soul. According to Wundt, it is not spontaneous at all, but closely related to the will, without which there can be no apperception.

According to modern extensions of the idea, all these men are right. Apperception is both active, as in the writing of a book and the solving of a problem; or passive, as in perception and conception. It is both outer, as in the case of sense-perception, and inner, as in reflection, thought, or reverie.

Add to these ideas the work of Herbart's disciples, Lazarus, Steinthal, Lange, and De Garmo, as well as the suggestions of non-Herbartian writers like Waitz, Dittes, Erdmann, Fichte, and Lotze, and you have the warrant for the very wide application of the term apperception as found in the present chapter.

VI. The Relation of Apperception to Other Mental Processes

1. Sensation and Perception.

Alexander Bain says the process of knowing may be resolved into two fundamental activities, assimilation and discrimination; the one a combining, the other a separating process. If this be so, assimilation corresponds in a general way with the apperceptive function. It is the synthetizing power of mind. Not all writers, however, would use the term with so wide an extent, but would restrict it rather to a synthesis between old and new elements of knowledge. Used in this limited sense, apperception is not involved in sensation, altho Kant sees the function even here. But in perception it is the essential thing. The process of perception may be resolved into several distinct elements altho, of course, no one is conscious of these while he is perceiving. First there is an impression of the new object. Then memory brings to consciousness out of your previous experience ideas similar to the new impression. Apperception unites the new with the old, and the product is a percept (see diagram).

Perception.

Memory (previous experience) a′——b′——c′——d′
Mental reaction (present impression) a——b——c——d
Stimulus (action of things) A——B——C——D

Let A=Taste.
" B=Touch.
" C=Sight.
" D=Smell.

Go into a dark room; taste an apple; "a" is the mental impression made by the taste stimulus; which immediately calls up a′, b′, c′, d′, and unites them as belonging to the same object. This is apperception, and the total mental product is a percept.

It is evident that "a" may be a very insignificant part of the total effect of a stimulus. Thus, if you expect bad news, the mere ringing of the door bell may cause your heart to beat violently, and the sight of a telegram may cause you to faint. In both these cases, it is not the stimulus that produces the profound impression, but the mind's own contribution of memory and *emotion*.

Once more we are reminded why children do not see as we see. Once more it is evident that it is not enough to require them merely to use their senses. The teacher may show a picture or perform an experiment and then flatter herself that at last her pupils understand all about the subject; until some unexpected and irrelevant question proves that the thing has been wholly misapprehended. The effect of the sensory stimulus being so small a factor, and the pupil having perhaps no apperceptive series at all to reinforce this impression, there may be an utter lack of real perception altho the pupil has paid strict attention all the time.

It is proper to remark at this point that while the function we are considering has been recognized by all schools of psychology, they have not all employed the name "apperception" to designate it. Various other names have been applied by different writers, such as "psychic reaction," "interpretation," "conception," "assimilation," "elaboration," "thought;" but the most common of all terms in English psychology is "association." Prof. James hesitates to use the word apperception because all that we ascribe to this power, he says, may be accurately explained by what is implied by the familiar word association.

2. MEMORY AND IMAGINATION.

What part memory plays in the apperceptive process, we have already seen in the case of perception. Memory holds in the mind and supplies by association the experience of the past which is destined to be consolidated with new impressions. This experience exists in the form of images and ideas, together with the feelings associated with these. An image may be defined as a revived percept of any kind. An idea* is any product of the representative power, whether percept or concept. Sometimes no new sensory contribution occurs at all, but images and ideas emerge in consciousness, which are modified and combined, perhaps, in a grotesque way, without regard to the laws of taste or probability. Then we call the apperceptive process fancy or phantasy. Such works as "Baron Munchausen" and "Alice in Wonderland" are largely products of this faculty.

The early forms of imagination in children are also of this character. Play is nearly the whole of a child's spontaneous activity. The kinds of play are suggested by his environment, but their forms are often the product of his fancy. A child's mental life is thus as rich as the adult's; what he lacks of experience as an organ of apperception, fancy supplies. And so he sees in his rude toys a thousand attributes and actions of which they are wholly innocent. In this way he, too, adds to his percepts his inner contribution; but instead of securing for him clear apperception, this gives him a view of the outer world which is fanciful and poetic rather than scientific.

---

*Sully's Outlines of Psychology. Appleton, 1891. Page 219.

The higher forms of imagination are also modes of apperception. Milton produced "Paradise Lost" by taking certain ideas from the Bible, modifying, analyzing, and recombining them into new forms. "How often," says Lange, "in the soul of the poet may such thoughts and inner experiences await the happy hour when a favorable mood grants them the right expression, the artistic form. For poetic creation is more than a clever play of the fancy. Lively, tender memories out of the poet's own emotional life must come to the help of the poetic fancies." The will also is concerned in the process, and this is guided by certain esthetic ideas and feelings at the root of the artistic bias of the man.

3. CONCEPTION.

Conception is the power to form general notions. It is often called generalization.

A little child was taken across the river on a ferry-boat for the first time. He heard the ferry whistle blow. "Mamma," said he, "what is that?" "That is a whistle," answered his mother. Soon a tug-boat whistle blew, different from the former. "What is that?" said the boy. "That is a whistle," repeated his mother. In a few moments an ocean liner blew her deep roar of a whistle. The child said: "Hear that whistle, mamma." This is an example of conception.

The universe contains millions of separate things, and thousands of facts impress themselves upon consciousness in the course of a day. If each fact or phenomenon had to be mastered by the mind as a separate thing, the burden upon memory would be so great that a knowledge of the world would be a hopeless task. But the mind is so constituted that it instinctively perceives the common element in objects that are in many respects unlike. Like things are put into classes, and thenceforth when a new object appears, there is always a class ready into which it may be placed.

This classifying instinct is conception. The product of the activity is a concept, notion, or general idea, and nearly all our knowledge is stored away in the conceptive form. The concept contains only the common properties of all the individuals. It is therefore abstract and general; never concrete and particular. Our concept "horse" has no color, no name, no age, is neither a car horse nor a carriage horse, but simply a horse. Tho we may not be able to put in words the qualities it contains or lacks, yet from the first the infant mind knows the qualities. The process of conception is often analzed into a number of steps, as follows:

(*a*) *Presentation,* which in the illustration given, consists in the mental impression made by each whistle.

(*b*) *Comparison.* Unconsciously, the child compared the sounds of the various whistles with one another and with the myriad other sounds that break upon one's ears in a busy city. Tho the whistles were unlike in some respects, there was something common to them all not found in the other sounds.

(*c*) *Abstraction.* This common element was therefore abstracted and made a distinct object of thought.

(*d*) *Generalization.* The similarity of the different impressions is like the chemical affinity in atoms. It draws them irresistibly together. The unlike qualities are neglected and the common element, like a golden thread, now binds together the three percepts and makes of them one thing, a new creation of the mind—a concept. This part of the process, the integration of the common element in diverse impressions, is the *apperceptive function.*

(*e*) *Denomination.* But one more step is needed before the notion is ready for storage in the memory. It must have a name. All our common nouns are names of concepts. The name furnishes new associations, and thus favors recollection; but its most important office is that it enables us to inform our neighbors of what ideas are in our minds. In this way our stock of knowledge obtains mobility; that is, we are able to think rapidly; and we are able to read the meaning of the intangible thought of other men who lived and died thousands of years before we were born.

4. JUDGMENT.

Judgment, in a broad sense, is the comparison of two objects of thought to discover similarity or difference. In this view it is identical with assimilation and discrimination, and appears at the very dawn of a child's life. But formal judgment, as understood in logic, is the union of two ideas called "terms" by means of the verb "be" or some equivalent expression, known as the "copula."

This is a synthetic process, and it is evident that we have here the apperceptive function in a new form.

5. REASONING.

Judgment may be defined as immediate inference, because two objects of thought are compared directly and the mind affirms that they agree or disagree. Reasoning is mediate inference, or a comparison of two subjects of thought thru their relation to a third.

If I compare the two ideas, *man* and *mortality*, I see that they agree—that one is a part of the other. This is an act of judgment, an immediate inference. Expressed in words, it gives me the proposition, *Man is mortal.*

But suppose I have the terms *King* of *Sweden*, *mortality*, and *man*. I compare *King* and *mortal* and find no agreement. The man is alive and in good health, and observation, of this individual case, can not prove to me that he is going to die. So I compare the term *King* with the remaining term *man*, and at once see agreement. I express this by saying, *The King of Sweden is a man.* Then I compare *man* and *mortal* and see from previous experience that they agree, that is, All *men are mortal.* And now, by putting these two statements in juxtaposition, I am able to infer, in this mediate or indirect way, that the *King of Sweden is mortal.* This involves both analysis and synthesis, the synthetic part of the process being apperception.

6. FEELING.

The relation of apperception to feeling is best seen in the case of interest. We must not forget the immense importance of feeling in the life of an individual, and especially of the child. There is no such thing as a cold intellectuality, unassociated with emotional states. The professor of mathematics, logic, or philosophy, who is supposed to be devoid of feeling, is just as emotional as a preacher of revivals or an excitable woman. The difference is one of kind rather than intensity. In the case of the professor the intellectual feelings chiefly are prominent, while in the other cases named the religious, social, or egoistic emotions may be involved.

Do you suppose a scientist would brave the dangers of pestilence to study a disease, or of wild beasts to secure a new specimen, or expose himself to the terrors of an Arctic winter to discover the North Pole, if he were not impelled by an emotion as intense as ever stirred in the breast of Caesar or Peter the Hermit? Every mental process gives rise to emotion, and emotion begets intellectual and volitional activity. The peculiar feeling that grows out of apperception is *interest.*

What you call a "dull" or "stupid" lecture is one you do not apperceive. If a stranger should appear and announce in the Chinese language that your mother had been murdered since you left home this morning, it would produce a feeling of curiosity, perhaps, or novelty, but no grief or shock. But let some one translate the speech, and immediately your whole being thrills with emotion. In the light of this explanation, the pedagogical application is not far to seek. If you want to interest your pupils, be sure that they apperceive your instruction.

7. WILL.

The three fundamental powers of mind—knowing, feeling, and willing—are indissolubly associated. There never is knowledge without feeling, nor feeling without action or a tendency to act. In other words, the mind is a unit—one, not three. Sometimes one phase of activity predominates; but too much emphasis on the idea of "faculties" is sure to mislead. Realize the mind's activities rather in the imagery of the amoeba's life. Now it is a sense-organ selecting food, now an organ of locomotion going in quest of it. It digests its food, performs the offices of respiration, assimilation, and excretion. Yet it is nothing but a simple, homogeneous speck of protoplasm. So the mind, a single, spiritual entity, can do many things, but is itself indivisible. The end of education may be expressed in terms of *being*, as Plato conceived it, or of *doing*, as we Americans think of it. The ultimate object of *knowing* anything is that we may *do* something. Knowledge is to will a guide, a light. Emotion is a motive power.

Before we can rouse to action we must stir up emotion; to generate emotion, we must see that knowledge is apperceived. Apperception, then, in a word, is to beget an interest, and interest is to issue in doing, in practical results. A political campaign is a perfect illustration of the relation of these three factors. The orator instructs the hearer; the audience, thru hypnotic influence, generates powerful emotions, and these in turn lead the voter to the ballot-box; and thus issues are decided, government is upheld, and history is made.

JOSEPH S. TAYLOR, Pd.D.
District Superintendent of Schools, New York City.

The Autobiography of a Teacher

VI. More Adventures.

I hope that the gentle reader will not feel that in these partial sketches of a busy life I am making too much of the adventures. If an apology be needed it is particularly in point at the beginning of the present chapter, since I realize that this part of my story is little short of the melodramatic. But my whole life has been adventurous, and I value all my adventures, for they have really been my teachers. It is true, I fear, that all teachers are not agreeable, but some of the least agreeable are said to be highly effective. Since I started out to tell something of the pedagogical side of a life, I must not omit its less gracious aspects.

Those of us who believe practically in evolution, must believe that there comes a time when the process is a conscious process. If I am the sum of all my past environments, and I come to be aware of the fact, it follows as a necessary corollary that by controlling the present environment I really shape the future man. We are the children of our own experience. When I take over the control of my own life, grasp the reins in my own hands, I become very regardful of experience. I am no longer content to take what comes, for the spiritual reaction may not be to my liking. I must decline certain experiences. Since I have come to recognize them as the cause of undesirable results, I must accept other experiences—deliberately seek them out, in fact,—as the cause of effects humanly to be desired. This is indeed the pith of my own every-day philosophy of life. It is neither novel nor original, but it makes life absorbingly interesting, for it keeps it full of large possibilities. It makes education a conscious process which begins when the soul first awakens, and continues thruout the whole of the earth-life. Under what influences shall I place myself to-day —this month—this year? That is the vital question for the unfolding soul. It is in this spirit, I think, that one should seek adventures, not at hap-hazard, not as idle amusement, certainly not merely to kill the time, but as the open door to a larger knowledge. There is much to be said in favor of perseverance,—it *is* a goodly virtue—but so many chant its praises that I am disposed to think that it may get overpraised, and that occasionally some free-lance like myself would better praise its opposite,—the good habit of giving up when you have got all the juice out of an experience that you wholesomely can, and the turning to new and more promising nourishments. For environments do become like sucked oranges, and it is the part of wisdom to know when to throw them away.

There was once a mariner, it is said, who whistled for a breeze, and got a hurricane that sent his ship to the bottom. I was in much the same case when I turned towards the Rocky Mountains,—my breeze became a hurricane. My adventures began, as I have said, with a gentle prelude, and ended in a distinct melodrama. The prelude, however, was one of great happiness, for it meant a month of wonder in Colorado, the golden month of October, and with no less a comrade than my mother. I had never been further west than Pittsburg, and my mother, I think, had never gone beyond the neighborhood of Chicago. It is still a distinct experience to cross the plains, but in 1884, it was an even greater experience, for the farms and ranches did not reach so far westward from the Mississippi, nor so far eastward from the foot-hills of the Rockies. The two frontiers were further apart, and the yellow, naked plain, at once impressive and terrifying, was more of a reality. It was quite the longest journey that my mother and I had ever made. The weather was perfect, the scenery was novel and full of interest, and we were soon both quite well. We were singularly free from care and worry, and, above all, we were together. My mother was very youthful in appearance, as well as in spirit. I think that something of our happiness must have been reflected in our faces, for twice, at least, we were mistaken for wedding-journeyers. I was careful to point out to my mother that this was due not only to her youth and beauty, but quite as much to my own devotion—nor was she disposed to gainsay it!

We stopped first at Denver. I had checked my valise at Pittsburg, and by good fortune, claimed it immediately on the arrival of our train in Denver, and had it carried to the cab. When we reached the hotel and I went to dress for dinner, I found one thing missing and then another until I realized that somewhere during that long journey my valise had been thoroly rifled. My greatest loss was a little diamond scarf-pin that had been given to me on my twenty-first birthday and that I was most unwilling to part with. The following morning I reported the matter to the superintendent of the Union Station, who was filled, it seemed to me, with an altogether unholy glee, since the circumstances proved quite beyond question that the theft had been committed en route and not in his own station. It seems that many similar losses had recently occurred, and that the blame had been thrown on the Denver baggage-room.

The amount of personal satisfaction that I could feel at having vindicated Denver was tempered by the loss of the pin! However, to make a long story short, I made formal complaint to the proper authorities, and in the following spring my little diamond pin was sent to me in the East, with a money order to cover the other losses. The pin had been found on a brakeman down in Missouri! I mention the occurrence as being rather remarkable detective work over such a vast territory as stretches between Pittsburg and Denver—and it was before the days of Sherlock Holmes.

But to return to Colorado. It was too late to go on the ranges, or into the upland parks in the interior of the State. We found plenty to interest us, however, in skirting the foot-hills and catching such glimpses as we could of the tremendous heights beyond. It was, of course, too late to climb Pike's Peak. I did not get up there until nine years later, and then my mother was no longer with me. We got up as high as 10,000 feet, at Black Hawk, and I had a touch of mountain fever in consequence. But for the most part we contented ourselves in skirting along the foot-hills, visiting Greeley, Boulder, Colorado Springs, Manitou, Idaho Springs, Golden, and Pueblo, as well as Denver. Whenever possible we stopped at private boarding-houses, instead of the wretched commercial hotels which were then the usual alternative. In this way we were not only much more comfortable, but we also had a far better glimpse of the social life and conditions. I have almost come to regard this plan as an essential of intelligent travel. The big hotels show you an army of head-waiters and servants, and among the guests a company of persons, more or less unhappy, who have not sufficiently found themselves to be as a rule either instructive or amusing. In the little pensions and boarding-houses, however, you get a touch of genuine life; and among the permanent pensionnaires and the slow travellers of slender purse, you are more likely to find persons who are worth while. I recall a tiny pension at Siena, where I paid four and a half lire a day, and where among the other four pensionnaires, there was not a single blank; and

I recall larger pensions of the semi-fashionable sort, where I paid three times as much, and from which I had to flee for my life to escape the prevailing inanities.

My mother had a rare talent for making friends, and in less than a day practically had the whole household at her feet. We had a particularly good time at Boulder, but it really was typical of many similar experiences. We stopped with a family from Michigan, from the place where they grow the famous celery,—Kalamazoo, is it not? They were always spoken of as Eastern people, which amused my mother and me, to whom Pittsburg seemed a Western city. At that time Colorado was so refreshingly new that practically no one had been born there, and after every introduction came the inevitable question,—"And where are you from?" It begot a stereotyped reply,—"we are from the East, from Philadelphia." After hearing it one day, a lady at Idaho Springs said to me, with a far-away look in her eyes,—"I am from the East myself." "Yes," said I, "from what part?" "From Nebraska," said the lady.

We stopped at Boulder only a week, but we met many of the old settlers, and explored the neighborhood with great enjoyment. The distances were commonly too great for walking, tho sometimes I made as much as fourteen miles of an afternoon, but it was possible to hire excellent double phaetons and a pair of sturdy horses, whose performances excited alternate admiration and apprehension. With a couple of the old settlers to keep us company, and serve as guides, we had some wonderful drives among the foot-hills and gorges. I particularly recall the drive to Jimtown. By this time I suppose it has become more sedate and has settled down as Jamestown. There was a very rich gold mine there,—"The Golden Age"—and while I went seven hundred feet under ground to examine the vein and workings, my mother talked with the miners and searched the dump heap for specimens of minerals. My mother was genuinely interested in anything that interested me, and was already something of a mineralogist. When I emerged from the nether world,—more light-hearted as always, to be coming up than to be going down,—the superintendent took us to his cabin, and from a large safe that stood in one corner, brought out a handful of very rich ore. He asked us to guess its value. Bound not to be outdone, I said, "seven or eight hundred dollars." In reality I ought to have said "seven *and* eight," for the one handful was worth fifteen hundred dollars. To be sure, the superintendent had a rather large hand. The ore was pure quartz, shot thru and thru with beautiful yellow gold. The value is calculated to a dollar by means of the specific gravity.

We came home towards twilight. Our road extended for some distance along the very ridge of the foothills. On one side we had the wide stretches of the inland parks and valleys rising into the magnificent broken outline of the great mountains. On the other side, apparently rolling on to infinity, lay the vast copper-colored plain. Nor were the heavens less varied. A keen wind blew in our faces, separating a snow storm that raged in the mountains from a thunder storm that muttered over the plains. Before we reached Boulder, the moon came out, and the enchantment was complete.

This day was typical of many others. My mother and I were literally as happy as children. We wandered from one end of the State to the other, enjoying the bright sunshine, the keen, clear air, the magnificent scenery, the outstretched valleys, the interesting social and industrial phenomena. Altho it was confessedly a pleasure trip, I could hardly have done anything better professionally. And, indeed, when one loves one's profession, work and play are never far apart. On the plains, I saw them mining for coal; in the foothills, for gold and silver, lead and copper. In the river bottoms I had my first opportunity to study placer mining. My mother and I learned to wash the rich gravel, and separate the heavy "Black-jack" from the shining scales of gold. The whole trip was an ideal experience for both of us. Never for one little moment was my mother in the way. On the contrary, her very human interest in the miners, and in all the persons we met, proved the *open sesame* to many a hidden mineral cabinet, to many a loosely-guarded secret, to many an interesting experience that would have been quite closed to a less sympathetic traveler. It would have been a dull trip without my mother and vastly less instructive. It seems almost incredible that without worry or haste or special plan we should have seen so much in one short month. We walked, we rode, we drove, we even traveled, when necessary, in the caboose of freight trains. We visited mines and mills, churches, cabins, lakes and hills, cities, villages, and mining camps. My mother was charmed with Colorado. Her love for Nature and a life in the open was as keen as my own. In Colorado we had both. At Manitou, we even looked at rentable cottages, thinking that the glorious sunshine and the tonic air might be excellent for my mother's health. I have never ceased to regret that we did not carry out this or some similar plan, for I feel so sure that her life might have been prolonged for many years. But I had not sufficient experience or judgment to realize this, and so, about the first of November, this gentle prelude ended and we came back to Philadelphia. I brought with me, however, a far less rational plan, nothing less than a scheme for buying and operating two silver claims down in New Mexico that I saw during a hurried sortie made while my mother was resting at Colorado Springs. Had I given hospitality to the microbe of typhoid fever, it could hardly have proved more dangerous or brought me nearer death. But destiny apparently is not to be gainsaid, and so I proceeded with serene confidence to do one of the most foolish things a youngster could well do, and to get a lesson, valuable, it is true, but exceedingly dear.

It came about in this way. I had intermittent attacks of wanting money. I suppose most lads have. My own money-hunger was not, I think, ignoble. Perhaps I wanted the money for myself, but I *thought* at least that I wanted it for others. I had visions of still further rescuing the family fortunes and restoring them to what they had been in the time of my grandfathers. It is a dangerous bee to get in one's bonnet. All up and down the State I kept watching for opportunities. I had many narrow escapes from a whole series of wildcat schemes, but at last the day of fate arrived when I was no longer immune. I was coming down on the train from Black Hawk to Denver. In glancing over the paper I chanced on an advertisement that seemed to fit my case exactly. It was a pleasantly worded advertisement, and stated that a gentleman with a little capital was wanted to join another gentleman with a little capital in buying and operating a promising silver mine in New Mexico. I must have been singularly guileless not to have read between the lines, but I didn't. I wrote at once to my well-bred brother of small capital, and invited him to call at our hotel. He did so with surprising promptness. He certainly looked like a gentleman; he said he was the superintendent of a Sunday school; and the tale he poured into my all-too-willing ears had in it all the seeming elements of truth and attractiveness. I do not know whether he is still alive or whether he even remembers me. At any rate I bear him no ill-will. He was one of my teachers, and tho his particular lesson was rather expensive, it was probably worth all I paid for it. Perhaps he also counts me among his own teachers, for when the denouement arrived, some weeks later, we had a scene of highly dramatic quality, in which my own part in the dialog must have been distinctly disagreeable and to the point. But I am getting rather ahead of my story. I will call my brother capitalist Mr. Smith.

The upshot of our several interviews was that I went with Mr. Smith to New Mexico and examined the silver claims. They were next door to a very famous mine, whose name I need not mention. They showed precisely the same country rock and the same character of ore. I gathered my own samples and made what I supposed to be a careful examination of the property. Looking back I am glad that this examination was made for myself and not for someone else, for it was really a wretchedly poor piece of work. Believing that Mr. Smith and I were buying the property from strangers,—in case we did buy—I accepted his statements quite on a par with my own ascertained facts. I was exceedingly credulous, but perhaps it would have been more of a tragedy, humanly speaking, had I, at that age, been less so. I took my ores back to Philadelphia with me, and assayed them myself. I have forgotten what the returns were, but the silver ran several hundred dollars to the ton. It was a very stupid business, I confess, but I gathered together my own small wealth, borrowed a thousand or two from willing relatives, and plunged into the enterprise with all the enthusiasm of the ignorant. I remember that I had to send part of the money by telegraph, as Mr. Smith represented that his option was about to expire. I followed the money in person. Thanksgiving Day found me again crossing the plains, but this time alone. I had never been away from home on a holiday before, and felt decidedly dismal. When I reached the mining camp, Mr. Smith was waiting for me, as gentlemanly and agreeable as before. The camp was located on a naked hillside just over the Continental Divide, and was as rough a little place as one could well find. A single straggling street made its way among the rocks and thorny amole plants. Most of the cabins had canvas roofs. The larger ones were all saloons or gambling halls. Here and there a small tent lifted itself up in the dismal chaparral. All the foreground was squalid and ill-favored. But beyond, to the west, stretched a scene of rare beauty. A great valley, whose nakedness was hidden by the distance, lay at the feet of a range of mountains, picturesque and magnificent. Towards sunset the valley was bathed in a magic light that made it look like paradise and the mountain wall became alive with color. I hope that our own desolate hillside caught something of this divine radiance and seemed to some other homesick boy at a distance like veritable walls of jasper! Mr. Smith and I occupied a little board cabin on the hillside above the camp. From our one door we could see no other human habitation. Bare rock and prickly amole plants were our only neighbors. It was a horrible lonely spot, but vastly better than being in the camp itself. We had at least the cleanness of nature, a great expanse of perfect sky, and as the night came on, that westward vision of the New Jerusalem. Had all gone well I could have been very happy there. Even as it was, I never turned my face towards the west without a great thrill passing over me. At nightfall, in spite of all the sin and hideousness in the camp below, I seemed to be standing there on the heights in the very presence of the Eternal. We went for our meals to a little two-room cabin midway between us and the camp. We ate in the kitchen, and paid ten dollars apiece for table board. But the food was wholesome, and the family itself very kind and decent.

Mr. Smith had already secured a foreman and several miners, and work on our silver mine began in seeming earnest. I even experienced a few hours of optimistic satisfaction that my brilliant plan for the family betterment was really on its feet and promised to work. But things soon began to happen. The day after my arrival, Mr. Smith announced that unexpected and important business would call him back to Denver on the following day! My apprehension can easily be imagined. But Mr. Smith comforted me the best he could, assured me that he would soon return, and provided that in the meantime I should be opening up the mine. And in spite of my protests, to Denver he went, or at least he went away and I suppose he went to Denver. So I was left quite alone in that tiny cabin, out of reach and out of sight of any other human being. I am not, I think, a coward, but it was not a pleasant situation. I did not mind the wilderness, for I was used to that and loved it, but just over the brow of the hill was a little community made up of the very scum of the earth. There were honest men among them, as I found out to my gain, but there were a dozen or more who could have cut a man's throat as willingly as not, had it seemed more worth while than the thing they happened to be doing. I had no weapons, and such slight fastening to door and window that they amounted to nothing. One Sunday evening I was sitting alone in my little cabin, writing home. A violent wind swept up from the valley and smote our hillside almost as if in wrath. Everything about the cabin rattled and shook and moaned. Desolation sat beside me like a visible presence. Then above the violence of the storm a pistol shot rang out sharp and clear. A moment later there came a knock at the door. It was my good neighbor, with whom I took my meals. He had come up to tell me that there had been a quarrel in one of the saloons below, a quarrel over a game of cards, and a man had shot his friend. It was hard to write a brave letter home that night.

Meanwhile things were going very badly at the mine. Indeed, I was rapidly discovering that we had no mine, that it was a mere showing of ore, and that some of the better samples I had gathered on my first visit had probably come from our famous neighbor. To complete my disillusionment, I started to run a tunnel, only to discover that the lines had been misrepresented to me, and that any possible body of ore would not be on our property. There was but one thing to do, and that was to shut down. This, together with the story of disappointment written pretty large on my own face, unsealed the lips of my neighbors, and I began to hear things. There was a rumor that Mr. Smith had been arrested in Denver, put in jail for some fraudulent mining operation, and might never return. Furthermore, I discovered that Mr. Smith had put no money into our poor little claims, but had paid for them with one-fifth of the money I had forwarded by telegraph and had himself pocketed the other four-fifths. I must not go into tiresome details, but indeed the thing was about as bad as it could be. On top of everything else, I was held responsible for all supplies and work, and was practically a prisoner. It was generally conceded that I had been very badly used, one group of miners going so far as to offer to horsewhip Smith when he did return, and to do it within an inch of his life. I fear that one or two of them meant to make the margin even less. But this friendly offer I declined with thanks. I had a particularly hopeful friend in the person of a kind old Quaker gentleman interested in a neighboring mine, whose presence in that rough community seemed about as incongruous as my own. But the community as a whole shrugged its shoulders, held that Smith had merely played the sharper game of the two, and that there was nothing else to be done. I could have drawn still more heavily upon my borrowed funds, paid all bills and gone home. That would probably have been the better thing to do, but by that time I think my own fighting blood must have been aroused. With the help of my Quaker friend, I secured a lawyer in the neighboring town and waited for Mr. Smith's return. It was weary waiting. I remember that I read "Progress and Poverty," and was much stirred by it. I also made a number of friends. One of them was an Episcopal clergyman of literary tastes, who loaned me books. Another was a wild young cowboy who occasionally dined with me at my hotel. He had apparently brushed shoulders with every possible form of wickedness and came out of it all unstained. I can see him as I write,—baby-blue eyes of the frankest innocence, a beautiful tanned skin, sun-bleached hair,—altogether a personality so winning that I remember him as one of the most attractive persons I have ever met. I cannot help wondering what has become of him. I always felt that he ought to go into a book. But I fear that he would make every susceptible youth of sixteen want to turn cowboy, and that really would be a great mistake.

Finally, to my surprise, Mr. Smith did return. I never found out what adventures he had been meeting in the interval. Our interview was stormy, more stormy than I like to remember. As far as my own interests were concerned, my words were wholly wasted, but they may have done Mr. Smith some good, for I have reason to believe that they were more accurate than those he commonly heard or used. But nothing came of all this tempest. In a day or so, the situation became even more hopeless. The nine creditors sided with Mr. Smith, for they reasoned that he would remain in the country and be spending more money, while I would leave as soon as my affairs permitted. It was brutal reasoning, but quite logical, and they were wholly frank about it. I should have given up the fight, but my Quaker friend came to the rescue with a plan at once simple and effective,—he proposed that I should run away, and that is precisely what I did. We divided my funds into two parts. One part I took with me to pay my way back to Philadelphia when I made the frontier. The other part I left with him to pay the lawyer, the balance to be sent to me by telegraph to El Paso in case I were robbed *en route*. These arrangements were sufficiently dramatic to make our secret meeting seem like a conspiracy, and indeed that is what it was, the more remarkable because planned by a Quaker, and carried out by an idealist! I should not justify it now, or indeed any of the heat of that stormy period, but at the time it seemed to both of us the only possible way to gain the least bit of justice in the midst of the prevailing injustice. I have said that I was a prisoner, by which I mean, of course, that my movements were watched, and that any attempt to leave the place would probably have been prevented. My trusty Quaker friend was as expeditious as he was practical, and wanted me to start that evening. I went to my room as usual about half past nine, but I did not go to bed. At ten I slipped quietly down stairs and into the deserted streets. It was bright moonlight, and as I glided along the shadows of the old adobe houses, I had some of the emotions of a conspirator in a more justifiable drama. My heart was in my mouth most of the time, but I managed to get out of the town without any adventures. There was a little snow on the ground, and this combined with the moonlight, made everything distressingly plain. Once out of the town and I sped eastward as fast as my legs could carry me. All night long I tramped thru that terrible wilderness. It was the haunt of lawlessness, border ruffians, greasers, even occasional Indians,—but I met no one.

Once I heard a coyote howl. They are too cowardly to attack a man, unless in pack and driven by hunger, but to a palpitating boy fleeing alone thru that moon-smitten wilderness, the sound was something hideous. About daybreak I came to a slaughter-house. It was a repulsive looking place, but I bought my breakfast there, and it was very well that I did, for I got nothing else to eat all day. Up to that time I had followed the line of the railroad, but now I had to strike across the plains, with nothing to guide me but my own sense of direction. It was a wild thing to do, and I marvel that I got thru alive. All day long I tramped to the eastward, growing every hour more weary and more spent. At nightfall I expected to reach a railway station and start on the long home journey. By some miracle I struck the railroad at the exact spot I had planned, but when I got there, I found no station, no buildings, no human beings, nothing but a siding and the name of the station on a weather-beaten sign. It was a cruel disappointment. I sat down. I think I was too desperate to weep. I had already walked over fifty miles, and the next station was miles further on. For aught I could tell, it might prove to be another paper station. At length I roused myself and stumbled on. This second night was more hideous than the first, for by this time I was delirious. From time to time I sank down on the bare earth and lost consciousness.

A giant spirit came and stood beside me. It seemed pitiful and benignant. I myself became dual,—my aching body one personality, and my onlooking spirit another. How much of this was delirium and how much actual experience I do not know. It may be that the Death Angel stood beside me that night, and that my body and spirit came near to parting company. But I must have walked considerably, for somehow I covered the distance. At daybreak I met two very rough men who gave me a gruff "Good morning," and then, apparently on second thought, called after me to know the time. I dared not show them my watch. I allowed my hand to grasp an imaginary revolver, and called back that I thought it must be six o'clock. A few moments later, and the tank station came in sight. I remained all day at the tank master's tiny cottage flat on my back, throbbing with pain. How good they were to me! No train came along until evening. They helped me into it. It was well that I had considerable money, for the fare was ten cents a mile. When I had paid it, I knew nothing more until a rough hand touched my shoulder. It was the brakeman. We had reached El Paso, and I was free,—that is to say, as free as a lad can be who is very ,very tired, and who owes two thousand dollars.

C. Hanford Henderson.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

BOOKKEEPING.

Either the single entry or the double entry system is allowed

January 2, 1906. Joseph Stearns, jeweler, began business at Hudson, N. Y., with the following resources: cash, $1,800; merchandise, $2,500; store, $4,500; furniture and fixtures, $800; Frank Randall's account, $248; a ninety-day note for $960 without interest, dated December 1, 1905, signed by Arthur Knox. He owes Stone & Jewell, Providence, R. I., $640.

January 3. Sold Frank Randall on account one gold hunting-case watch, $115; one pair gold sleeve buttons, $12.50; charged him for repairing clock, $1.50. Cash sales, $250.

January 4. Received shipment of goods from Richard Sheldon & Co., invoiced at $300, discounts 20% and 5%. Paid by check. Paid express charges, cash 85 cents. Cash sales, $185.75.

January 5. Sold H. W. West on account one Waterman fountain pen, $4.50; one gold ring, $18; Received of Frank Randall on account, check $200. Sent Stone & Jewell, to balance account, draft on Fifth Avenue National Bank, New York, which draft I obtained at First National Bank, John Brown, cashier. Cash sales, $164.50.

January 6. Bought of Alfred Clark house and lot for $3,000. Gave in payment, at present worth, Knox's note (January 2), my note for $1,200 payable one year from date, and check for balance. Cash sales, $210.25.

1-3. Make proper journal (or daybook) and cashbook entries. Consider checks as cash.

4-5. Post items given in answer to questions 1-3. Balance ledger accounts and cashbook. Merchandise on hand per inventory, $1,850, real estate, furniture and fixtures, value unchanged.

6-7. Make statement to show resources and liabilities, present worth, and loss or gain.

8. Write draft mentioned in transaction of January 5.

9. Write the note mentioned as part of the investment January 2, and endorse it properly for the transfer of January 6.

10. Define five of the following terms: appraisal, contra, invoice, legal tender, net, tare, rebate.

ANSWERS

1–3 Hudson, N.Y. Jan. 2, 1906.

Cash	1800			
Mdse.	2500			
Real Estate	4500			
Furn. and Fixt	800			
H. Randall	248			
Bills Receivable	960			
Joseph Stearns			10808	
Joseph Stearns	640			
Stone and Jewell			640	
3				
H. Randall	129			
Mdse			127	50
Shop			1	50
5				
H. W. West	22	50		
Mdse.			22	50
6				
Real Estate	3000			
Bills Receivable			960	
Bills Payable			1200	
Cash			840	

Cash

1906 Jan	2	Invt.	1800		1906 Jan	4	Mdse	228	
	3	Mdse.	250			"	Expense		85
	4	"	185	75		5	Stone & Jewell	640	
	5	H. Randall	200			6	Real Estate	840	
	"	Mdse	164	50		"	Discount	8	56
	6	"	210	25			Balance	1093	09
			2810	50				2810	50

-5 .

Joseph Stearns

06						1906					
n.	2			640		Jan	2			10808	
	6			10242	59					74	59
				10882	59					10882	59

Mdse.

06						1906					
an.	2			2500		Jan	3			127	50
	4			228			"			250	
	6	Balance		82	50		4			185	75
							5			22	50
							"			164	50
							6			210	25
							"			1850	
				2810	50					2810	50

Real Estate.

						1906					
	2			4500		Jan	6	Balance		7500	
	6			3000							
				7500						7500	

Furniture & Fixtures

	2			800							

F. Randall

06						1906					
	2			248		Jan	5			200	
	3			129			6			177	
				377						377	

Bills Receivable.

						1906					
	2			960		Jan	6			960	

Stone & Jewell

						1906					
	6			640		Jan	2			640	

Shop

										150	

4-5 (Continued) H. W. West

1906 Jan	5	22 50			

Expense

1906 Jan	4	85			

Discount

1906 Jan	6	8 56			

Bills Payable

			1906 Jan	6	1200

Profit & Loss

1906 Jan	4	85	1906 Jan	3	1 50
	6	8 56		6	82 50
	6	74 59			
		84 00			84 00

6-7

Statement
Jan. 6 1906

	Resources	Liabiliti
Cash (C. B)	1093 09	
Mdse (Inv)	1850	
Real Estate (L)	7500	
Furniture and Fixtures (L)	800	
F. Randall (L)	177	
H. W. West (L)	22 50	
Bills Payable (B. B.)		1200
Present Worth		10242 59
	11442 59	11442 59
Present Worth		10242 59
Investment	10168	
Net Gain	74 59	
	10242 59	10242 59

(Continued on cover.)

8. First National Bank

Hudson, N. Y., January 5, 1906.

Pay to the order of Stone & Jewell Six Hundred Forty Dollars.

To Fifth Avenue National Bank,

New York.

John Brown,

Cashier.

9. Hudson, N. Y., December 1, 1905.

Ninety days after date, for value received, I promise to pay Joseph Stearns, or order, Nine Hundred Sixty Dollars, without interest.

Arthur Kent.

Endorsement:

Pay to Alfred Clark
or order.
Joseph Stearns.

10. *Appraisal* is placing a value on property. *Contra* means on the opposite side of the account. *Invoice* is an itemized bill of goods bought, sold, or shipped. *Legal tender* is money which can be legally offered in payment of a debt. *Net* is the amount after all deductions are made. *Tare* is an allowance made for weight of boxes, barrels, etc. *Rebate* is an allowance made from the stipulated price.

For Winter Reading

MARY KINGWOOD'S SCHOOL

A REAL STORY

Ideally Presented by CORINNE JOHNSON

A beautiful story of the every-day life of the primary teacher in her school-room. It takes up the work of the Primary room by months, telling what Miss Kingwood did in each of these months to make the season delightful and helpful to the children. The story is a charming one and has its pathetic and its humorous touches, but the key-note of it all is a sweet thoughtfulness and devotion to the best interests of childhood. It is well worth having in one's own room as a daily inspiration.

Cloth. 12mo. Price, $1.00.

A. S. Barnes & Co., New York

Now Ready

FOR THE ENTIRE UNITED STATES
1906-1907

SCHOOL DIRECTORIES

50 States 24 Books

The first complete list of School Directories for the entire United States ever published.

Each State list is a complete directory of the superintendents and principals of the public graded schools, of the county superintendents, and of the heads of colleges, normal schools, and academies.

ALABAMA MISSISSIPPI	ONE BOOK
ARIZONA CALIFORNIA NEVADA UTAH	ONE BOOK
ARKANSAS LOUISIANA	ONE BOOK
COLORADO NEBRASKA NEW MEXICO WYOMING	ONE BOOK
CONNECTICUT MASSACHUSETTS RHODE ISLAND	ONE BOOK
DELAWARE DIST. of COLUMBIA MARYLAND NEW JERSEY	ONE BOOK
FLORIDA GEORGIA	ONE BOOK
IDAHO MONTANTA OREGON WASHINGTON	ONE BOOK
ILLINOIS	
INDIANA	
IOWA	
KANSAS IND. TERRITORY OKLAHOMA	ONE BOOK
KENTUCKY TENNESSEE	ONE BOOK
MAINE NEW HAMPSHIRE VERMONT	ONE BOOK
MICHIGAN	
MINNESOTA NORTH DAKOTA SOUTH DAKOTA	ONE BOOK
MISSOURI	
NEW YORK	
NO. CAROLINA SO. CAROLINA	ONE BOOK
OHIO	
PENNSYLVANIA	
TEXAS	
VIRGINIA WEST VIRGINIA	ONE BOOK
WISCONSIN	

In connection with the address of each principal or superintendent is given the number of teachers in his school and the yearly salary he receives.

$1.25 Each. Full Set. $25.00

A. S. BARNES & CO., NEW YORK

Educational Foundations

MARCH
1907

VOL. XVIII
NO. 7

DEPARTMENT OF
EDUCATION.
RECEIVED
FEB 26 1907
LELAND STANFORD
JUNIOR UNIVERSITY.

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY

ELIZABETH, N. J. [illegible] NEW YORK CITY

Copyright, 1907 by A. S. Barnes & Company, New York

Contents for March, 1907

Editorial - - - - - - [illegible]

The Brain and Education. Thomas M. Balliet [illegible]

The Course of Study: Reading II. C. P. Cary [illegible]

The Teaching of Commercial Geography. Albert Galloway Keller [illegible]

School Discipline. J. L. Pate - - [illegible]

Correlation; Co-ordination; Concentration I. Joseph S. Taylor - - - - - - 517

Folklore in "The Culprit Fay." Hubert M. Skinner 533

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

is a magazine of pedagogy. It is published monthly, from September to [illegible] at [illegible] a year, and is sent to its subscribers regularly until ordered to be discontinued and arrears paid for in full. We also publish The School Journal, weekly, [illegible] a year; Teachers Magazine, monthly, [illegible] a year; and Our Times, weekly, [illegible] a year. Subscribers to two or more of these are entitled to club rates, sent on application. We also publish nearly [illegible] Standard Teachers' Books and Aids, also Entertainment and Dialog books, Blackboard Stencils, Teachers' Aids, etc.

All requests for catalogs, orders for books, etc., should be sent to

A. S. BARNES & COMPANY

101 Tremont Street *11-15 East 24th Street*
BOSTON, MASS. NEW YORK

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII MARCH, 1907 No. 7

God made mothers because He wanted the heart to be the ruling principle in education. A school system that has no heart at its center is a hollow fraud.

I count William DeWitt Hyde's book on "God's Education of Man" among the great books about fundamentals, in the bringing up of the young. Here, too, are revealed some of the author's innermost thoughts. His description of the immoral man is a striking picture, full of philosophic thought:

> If he (the immoral man) could go off by himself and be a brute among brutes, indulge in his beastliness among the beasts, then his degradation would be his own affair; society would let him alone; and, as nothing better would be given to him or expected of him, conscience would let him off without a twinge. But to act like a brute, and still to move among men; and wallow with the beasts and still claim a home made sweet and pure by woman; to conduct his business and his politics like a savage, and still to walk the streets and patronize the institutions which Christian people have made secure and sound; this receiving good and rendering evil in return; this living like a parasite on a social system out of which one is sucking the life blood—this, in plain terms, is what the immoral man amounts to.

And here is a beautiful picture of Dr. Hyde's ideal of a human life:

> We do right out of a tender and loving regard for the persons who are affected by our action; so to live that no man may be the poorer, no woman may be the sadder, no child may be the more wretched for aught that we have done or left undone; so to live that thru our words and deeds men may see the truth, and enjoy the beautiful, and reverence the pure, and honor the noble, and possess the means of material and social satisfaction—that is to share the life and love and blessedness of God.

Those who heard the addresses of Dr. Hubert M. Skinner at Chautauqua last summer will be interested to learn that EDUCATIONAL FOUNDATIONS will contain, in the course of the current volume, his entire rendering of that singularly beautiful and valuable educational classic of the Spanish which is known as "The Boy King's Legacy"—"The Centiloquy of Santillana." For more than four centuries this character-molding poem by the Sir Philip Sidney of Spain has been fast locked in the Spanish language, seeming almost to defy translation into any other.

At Chautauqua, Dr. Skinner presented his unpublished translation of the poem, which is reproduced in exactly the same verse form which distinguishes the original—the same peculiar length and arrangement of lines, the same recurrence of rhymes. This first English rendering of the famous old poem attracted much attention at Chautauqua and elsewhere, eliciting favorable comment from the secular and religious press.

In response to the hundreds of requests of Chautauquans and others that the English version be published in popular form, it has been arranged that the text and notes shall appear in this magazine. The work has been carefully vised by Dr. Skinner's collaborator, the Caballero Don Fernando Staud y Ximenez, Spanish Consul at Chicago, and representative of the Queen Regent at the Columbian Exposition, who is entitled to share in the honor of the successful translation.

This is what the Chautauqua *Daily* wrote last summer:

> It is not too strong a statement of the facts to point out that the lecture features of the current week are in many respects the best of the season. For originality and freshness both of subjects and of treatment, as well as for rhetorical and oratorical effectiveness of presentation, the lectures of the current week, taken in the aggregate, compare most favorably with those of any other week of 1906, or any other Assembly season.
>
> It is a week when the subject matter presented is for the most part new and unfamiliar to the average person. In the afternoon lectures by Dr. Skinner, he is interpreting great poems which have for the most part been unknown altogether, or have been mere names to even the advanced student of literature. Some of these have never before been translated into English, and at Chautauqua are being read in public for the first time. The public presentation of these translations constitutes a rich contribution to our literature.

Dr. Skinner will be a regular contributor to EDUCATIONAL FOUNDATIONS all thru the new year beginning in September.

The Brain and Education*

WHILE it is not possible to construct a theory of education on the basis of our knowledge of the anatomy and physiology of the central nervous system, yet the brilliant discoveries of the last thirty or forty years as to the structure and functions of the brain can throw many sidelights on fundamental problems in education; it is to a few of these sidelights that this paper will aim to direct attention.

Education has to deal with the development of the brain under the double aspect as an organ of the body and as an organ which forms the physical basis of mind and conditions mental development. Under either aspect, a knowledge of its structure and its functions is absolutely necessary for an intelligent study of the problem of its development and growth under the various influences commonly designated by the term education, whether physical, intellectual, or moral. It is, however, not possible in education to keep wholly separate and distinct these two aspects. The physical and the psychic are so closely related to one another that neither must be lost sight of in dealing with the other in the education of a human being.

So far as the elements are concerned with which education has directly to do, the brain is composed of nerve cells and nerve fibers—the so-called "gray" and "white" matter of our books on anatomy. The nerve fibers are, however, not, as formerly supposed, elements distinct from the cells, but are simply prolongations of the cell walls by means of which the cells are brought into functional relations with one another and with other organs of the body. The education of the brain is therefore chiefly the problem of developing its cells and their functions, and of bringing them into relations with one another so as to secure co-ordination in function, both physical and mental.

---

* Paper read before the American Association for the Advancement of Science at the recent meeting in New York.

It is one of the established facts of neurology that the number of cells in the human brain is definitely fixed before birth and can therefore not be increased by education, as was formerly thought. But most of these cells are undeveloped at birth, except those concerned with some of the reflexes; and the problem of education is to develop into functional activity as many of these granular, undeveloped cells as possible. The possibilities of education in this respect are obvious when we recollect that even in the best trained brain the number of undeveloped cells is relatively large. As the development of these cells does not add materially to the gross weight of the brain, the efficiency of a brain depends far more upon its thoro organization and the vigor of its cell activity than upon its mere weight, the maximum of which is almost reached by the age of eight or nine.

The development of the cells of the brain is brought about thru nutrition and judicious exercise. Wholesome food and an abundant supply of oxygen have long since been recognized as necessary conditions of physical health; but their direct bearing on the development of the brain, and, by consequence, on mental growth is but dimly seen now and is receiving but little practical recognition. But in addition to nutrition, and partly for the sake of nutrition, there is need also of training, or stimulation, which will call the cells of the brain into exercise. It is a fundamental law in physiology that blood flows more abundantly to parts or organs when they are exercised, when their metabolism is increased, than when they are not exercised. A moderate degree of exercise that does not exceed the limits of normal fatigue, is therefore necessary in order that the blood supply may bring an abundance of nutrition to the parts exercised, as well as in order that their functions may be developed. Education in the larger sense, of which formal or school education is only a part and possibly a minor part, consists therefore of all the various stimuli by which this cerebral cell activity and growth can be brought about.

Incidentally, it may be remarked that, as there is only a given quantity of blood in the human body, the persistent exercise of one part will continuously draw to itself a disproportionate share of it, and in consequence starve other parts or organs not exercised. In this manner, apart from its motor area, the brain may be developed at the expense of the muscles and other organs on the one hand, or the muscular system may be developed at the expense of the brain. The former gives us the scholar with flabby muscles, little endurance, and less grit; the latter produces the "Man with the Hoe," in whom and in whose immediate ancestors long hours of fatiguing unskilled labor, during which the large muscles have steadily robbed the brain of its normal blood supply, have reduced the mental functions to those of the beast of burden, and made him "brother to the ox." Such robbing of the brain of its blood supply thru excessive, heavy, muscular labor is far more harmful during the period of growth than later when growth has ceased; it not only interferes with the development of the brain, but it also checks the growth of other organs of the body by drafting off in work the energy which should go towards the building up of tissue. When we remember that the brain, altho its weight is only from one-thirtieth to one-fortieth that of the entire body, requires normally about one-fifth of all the blood in the body, and that the cellular gray matter in which most of its work is done, alone requires about one-sixth of the blood of the entire body, we can appreciate how easy it is to rob it of nutrition to an extent sufficient to check its growth.

We have here the educational basis for strict child labor laws, and for shorter hours of labor for the adult. These questions become philanthropic questions only because they are educational questions, and it is but natural that educators and philanthropists should, as they in fact do, work hand in hand in solving them.

Education, may however, thru overstimulation, directly injure the growth of the brain. The brain grows very rapidly from birth to about the age of eight. During this period of rapid growth, most of its energy is required for building up of tissue and little surplus is left for functioning, especially in a way that requires effort and produces fatigue. Overstimulation such as is produced by the noise and excitement of city life, is harmful and tends to produce instability of the nervous system. The quiet of rural life is what the brain needs at this period and even later. Moreover, premature attempts at formal education, and the mental worries and fatigue which they entail, are likewise injurious. The informal joyous mingling of bodily and mental activity which is the characteristic of the kindergarten should be continued, with necessary modifications, in our primary schools during the first two or three years.

But the brain is not a single organ and does not function as such. One part has one function and another a different one. There is one part of the cerebrum in which the visual cells and another in which the auditory cells are located, and still others in which the cells active in the functioning of the other senses are located. The details of this localization of brain functions have been but imperfectly worked out, and many of them are as yet almost pure assumptions; yet there are certain fundamental facts which are apparently well established and which can be made to throw light on educational problems.

One of these is the fact that a stimulus of a peripheral sense organ does not produce consciousness until it reaches the brain center of the peripheral sense organ. Seeing and hearing take place in the sensory brain centers and not in the eye and the ear. Sense training, in so far as it is a physical process, is therefore a training of brain cells and not a training of peripheral sense-organs, as has sometimes been assumed by teachers and by writers on education. In education we can train the eye and ear only in a metaphorical sense. Jastrow has shown that it takes at least five years of stimulation of the visual area to develop memory images to be definitely called up without the outward stimulus. He found that persons who become blinded before the end of their fifth year never dream in visual images; that persons who become blinded after the completion of the seventh year without exception dream in terms of vision; and that among those blinded between the end of the fifth and the end of the seventh year, the ability to dream in visual images is very rare. This is, to say the least, an interesting group of facts, altho their full significance is not wholly clear.

The most important element in sense training is the development of apperception and is a purely psychological process. "We see with what we have seen" and "hear with what we have heard." In fact we see and hear with all we know and with all we are. A Newton sees the mathematics of the heavens while a Milton sees their sublimity and feels their grandeur. The difference must be sought not in the heavens but in Newton and in Milton. Poetry must be in the soul before it can be found in Homer or Shakespeare. This purely psychological development of the power to see is far the most important element in training the sense of sight, but it does not come within the scope of this paper.

But we must recognize also a purely physical or physiological element in sense training, and this consists apparently in the stimulation of the sense centers thru the various sense organs so as to make these centers more and more sensitive, or responsive, to stimuli. In this way the visual cells may be made sensitive so as to be able to perceive shades of color before imperceptible, and the auditory cells so as to perceive shades of tone before imperceptible. Developing tone perception in music and color perception in art education has therefore to do directly with these groups of brain cells. Indeed, in the development of sense-perception this purely physical phase is absolutely fundamental, as it furnishes the basis for the development of memory images which enter into the complex mental process called apperception, in the Herbartian sense, as constitutive elements.

The localization of the memory images of the various senses has not been definitely worked out; but whether these memory images are located in the sensory areas, as was formerly supposed, or in specialized association areas situated along the margins of the sensory areas, it seems established that each separate sense has its own memories, which can be developed only thru that sense, and which are as independent of each other in their development as are the sensory areas themselves. For education this means that we have not a memory, but rather memories; and that there is no one study in the curriculum whose special function is to train the memory. It also means that the various sense-memories must be trained thru the different senses; and that, as regards method, the best methods of training the senses are also the best methods, with slight modifications, of training these sense memories.

Likewise, these memory images constitute the material with which the so-called imagination constructs its images; as these memory images are relatively independent of one another, in the sense that each can be developed thru its own appropriate sense only, it follows that in education we have to deal not with "an imagination," which may be cultivated by means of a special study or group of studies, as is commonly assumed, but rather with "imaginations," each of which is dependent on its own sense center and can be developed only thru stimuli that come from the corresponding sense organ. In short, the means of sense training, and the means of training the memories and the imaging powers, differ mainly in the fact that in case of the latter special emphasis must be laid on the power of ready recall. In that divine "faculty" which can write Hamlets, compose symphonies, paint Sistine madonnas, and construct cathedrals, we have a combination of many psychic factors which make it highly composite; and, altho the artist uses predominantly a single sense as the medium of expression, he, in fact, pours his whole soul, his entire being, into a great work of art.

It needs scarcely to be pointed out that until within comparatively recent years traditional educational theory had mistaken the verbal memory for "the memory" and quite naturally placed a wholly wrong emphasis on the verbal memorizing. In like manner, our theories of art education to-day, mistaking the visual imagination for the "the imagination," fail to recognize that art education is broader than drawing and painting, and that music and literature and artistic handiwork in manual training must receive recognition in our schools as necessary elements in such education.

Besides the so-called sensory areas, all of which are partly motor, there is a large area in the brain specially known as the motor area or the motor zone. In this area are generated the neural impulses which cause contraction of the voluntary muscles in all voluntary movements.

As the cells in the sensory areas are stimulated and developed by the use of the corresponding peripheral sense organ, so the cells in this motor area are developed thru the voluntary contraction of the muscles; and the point to be emphasized in education is the fact that they cannot be developed in any other way. An abundant variety of muscular movements, in the form of play, gymnastics, manual training, or ordinary muscular or manual labor is absolutely essential to the development of this part of the brain. It has been found that in case of amputation of an arm or a leg in childhood, the motor area controlling the amputated limb remained in a rudimentory condition, just as the visual and auditory areas in Laura Bridgman's brain were found after her death in a comparatively rudimentory state.

Moreover in this general motor area, or contiguous to it, are located the sensory centers which receive the impressions that come from muscles, tendons, and probably from the bones, and constitute what is commonly known as the "muscular sense." It is in these kinesthetic centers that are located the sensations which accompany muscular contractions and muscular movements and which make us aware of the degree of such contraction or movement. They are the sensations which give us the "feeling of effort" in voluntary movements. These sensations by repetition develop into motor ideas, which may afterwards be recalled in consciousness exactly as the sensations of hearing and sight develop ideas of tone and ideas of color which may afterwards be recalled as "memory images." These ideas of movement and of effort underlie our conceptions of weight, size, and distance and therefore are among the most important fundamental elements of our mental life. They form the basis of many of our esthetic judgments. Massiveness in architecture, which turns on the relation of support to weight of material, balance, proportion and symmetry are appreciated chiefly thru this kinesthetic sense. The esthetic feelings associated with graceful curves as compared with broken lines have, no doubt, their root in the kinesthetic sensations which accompany curvilinear in distinction from angular muscular movements. It is for this reason that in drawing the pupil must be required to draw graceful curves with a free arm movement instead of a cramped finger movement, as the kinesthetic sensations accompanying the two are very unlike.

These motor ideas also underlie many of our moral judgments, inasmuch as the element of effort enters as a vital quality into a large number of moral acts, and gives to many of them their sole moral worth. The clear appreciation of effort becomes a part of our moral sense.

Furthermore, these motor ideas, developed thru muscular movements, become an integral part of what is called manual skill. They are fundamental in the control and guidance of muscular movements. Precision of movement without them is impossible. The chief ingredients in that composite product called manual skill are these motor ideas or sensations, visual sensations, and a short circuiting of neural processes and establishing certain neural habits. Manual skill therefore resides not in the hand but in the brain and in the mind; manual training is primarily mental training thru the hand. To speak, therefore, of training the mind and the hand is to use a figure of speech and not to state a scientific fact.

These motor ideas have, moreover, a direct relation to the power of volition, they form the tap root of the human will. Volition begins with voluntary muscular movements, and the essential condition of a voluntary movement is the idea of the movement. This idea is made up of visual impressions of the movement, and of motor sensations gained thru the performance of the movement made as a neuromuscular reflex. Without this muscular sensation, as a memory image to guide the voluntary movement such movement could never be initiated.

Our remote ancestors, no doubt, could voluntarily move their ears as many other animals can, for the muscles which can effect such movements are found in the human scalp of the present day. But these movements are no longer made as reflexes and therefore the muscular sensations that accompanied them in primitive man can not be gained by men of to-day. If we knew how it felt to move the ears we could, no doubt, make the movement voluntarily.

As the motor area is the area in which the neural impulses are generated which cause voluntary muscular movements, and as the adjoining area is the area in which are registered the motor sensations and motor memories which guide voluntary muscular movements, it becomes clear that this general region of the brain is most intimately and vitally related to volition, and that its development is fundamental in the development of the executive and the ethical side of our nature. This close connection between muscle and will, between physical training and certain fundamental elements in moral training is becoming more and more recognized in education.

This motor and kinesthetic area as the area in which muscular movements are initiated and in which are registered the various sensations of movement, and possibly also those of temperature and other bodily conditions, is therefore the part of the brain thru which more than thru any other there is developed the feeling of unity of our being, the feeling of oneness between our psychic and our bodily natures, the sense of personality. As a matter of fact this feeling of personality, of the ego over against the non-ego, is not inborn but develops quite gradually after birth. There are abundant facts to show that the child for some time treats its body as a thing external to himself and only gradually discovers it, part by part, as an integral element of his own being.

This area, too, occupies a central location in the cortex of the brain, not only in relation to the other sensory centers, but also in relation to the association areas, both in the frontal and in the parieto-occipital region. But it is central not only as a matter of external anatomy, but also as matter of internal structure and function; for Flechsig has shown that from this area there extends an immensely larger number of association fibers to other, and especially remote, parts of the brain than from any other sensory area. This is especially true of the fibers that connect this area with the large frontal and occipital association areas.

The basal character of this area, both in regard to the physiology of the brain and in regard to our mental life, is further emphasized by the fact that of all the sensory areas this one, which puts us in communication with our own bodies and makes us aware of our physical selves, is the first to become functionally active and to mature; the others following in the order of smell, sight, and hearing. This order of maturing has been worked out by determining the order of cell development and of medullation of nerve fibers thru the careful study of foetal and infant brains in various stages of development.

I can perhaps best sum up the meaning of all this in the words of Flechsig in his epoch making address before the congress of German scientists and physicians at Frankfort. "This kinesthetic, or somesthetic, area of the brain is an indispensable condition for the development of conscious personality or the ego. It is the only sensory area of the brain whose development is absolutely indispensable to the development of the mind. Without it the development of a personality is inconceivable, while the senses of hearing, of seeing and of smell may either singly or all together be functionally absent without its making impossible the development of even a relatively high order of mental ability, as is clearly illustrated in the case of Laura Bridgman." (He might have added with special emphasis the case of Helen Keller.)

"In view of these facts," he goes on to say, "the order of the development of the various senses acquires a new significance and interest. To the somesthetic sense or area which is earliest in its development, and which makes us aware of our own bodies and bodily conditions, the other senses which make us aware of the outside world, are later added not as of equal significance but rather as an appendix. There is therefore not a relation of equality between the different senses but a relation of subordination. The brain as the organ of mind is constructed not on the principles of a republic but on the principles of a monarchy; upon the somesthetic sense falls the leadership from the very beginning, and it retains this leadership as the chief bearer or basis of self-consciousness thruout life. Accordingly, extensive lesions of this somesthetic area, in both hemispheres, result in far more serious injuries to the mind than one would at first suppose. In all probability we have under such circumstances a peculiar form of mental disintegration."

It is scarcely necessary to point out in detail the far-reaching significance of these facts to education. The development of a forceful personality, well knit together, the development of power of individual initiative, self-control, and of determination is one of the chief aims of education. These are qualities of character much higher and much more difficult to develop than mere intelligence. While these qualities are not the whole of character or of personality, they must be recognized as absolutely fundamental. In our schemes of education we have confessedly failed to make provision for means of developing them which have proved effective. It is here where motor training of all kinds finds probably its highest significance. It is a well known fact that the sub-normal mind can be most readily awakened thru motor channels. Muscular movements and manual training are the most effective means of developing both the character and the mental powers of the feeble-minded child.

The prehistoric education of the race illustrates in an illuminating way the effectiveness of motor education in developing these essential qualities of body and of mind, and it illustrates also how much broader education is than books and schools. The human race has existed on this earth at least for fifty thousand years, and probably much longer. Reading and writing date back, so far as we know, only about seven thousand years. During this long prehistoric period of over forty thousand years the race developed a brain which was almost as large as the brain of the civilized man of to-day. This development was brought about, partly, of course, by the rigid elimination of the "unfit," but mainly by the use of the muscles and of the senses, and by contact of man with man. In this way were educated the great Indian chiefs of our early colonial times who were a match in war for the best men of the white race. Civilization thru its increasing complexity has made education increasingly bookish, and has steadily eliminated some of the most important features of this effective prehistoric education from the life of our growing youth. One of the vital problems of to-day is to re-embody in our educational systems of to-day the most essential elements of this early education of the race. Physical training, manual training, nature study, and even drawing, singing, and dancing—these are not new "fads" in education, as some of our minor politicians will have it, they are the oldest means of education the race has had; they antedate such modern studies as reading and writing by over forty thousand years.

To speak more specifically of the relation of the brain, or rather the central nervous system, to the problem of motor education, light may be thrown upon this problem by viewing it from the standpoint of the generally accepted "Three level theory" of Hughlings Jackson. This theory, it is needless to state, conceives the nervous system as consisting of the reflex level, of which the spinal cord is the principal organ; the sensori-motor level of the lower brain centers, and the level of conscious thought and deliberation, or the cerebral cortex. A system of gymnastics may appeal in the main to any one of these three levels. A system like the Swedish, which requires that a verbal command be translated into a muscular act, obviously appeals to the cortex, or highest level. It has therefore the merit of developing the motor as well as the kinesthetic area in the brain, and it makes for voluntary co-ordination and voluntary control of the body. It has not improperly been called *educational* gymnastics. But the necessary attention which it requires also makes a severe tax on the easily fatigued inhibitory powers of the brain; therefore this sort of physical exercise can not be made a substitute for the usual school recess, as it has been in many cities on the theory that physical exercise rests the brain. Another type of gymnastics may appeal predominantly to the sensori-motor level. This is the characteristic of all systems which require the teacher to go thru the movements and the pupils to imitate them. Such gymnastics do less for the motor development of the brain in its cortical regions, but they are more restful and possibly more pleasurable to the pupil; they are related to a play recess, however, somewhat as medicine is related to food, but as compared with Swedish gymnastics they are probably a relatively harmless substitute for the recess. Thirdly, muscular movements which have become memorized and are performed with a minimum degree of consciousness or unconsciously, are largely relegated to the reflex level.

The central nervous system matures in the individual in the same order, minor details excepted, in which it evolved in the animal series. Accordingly, the reflex leval matures first, the sensori-motor level next, and the highest level last. More than that. Those elements in each of these levels which evolved more recently than the rest also mature later. It is during the process of rapid maturing that training can do most for the development of a nerve center; with the cessation of growth of any particular nerve center there comes the "judgment day," after which it will be forever too late to develop a maximum degree of functional efficiency thru the most persistent training.

During the period of rapid growth a nerve center craves for activity. It is for this reason that during infancy and early childhood when the reflexes of the spinal cord are rapidly maturing little children are constantly moving about; and, if they are normal, never of their own accord sit still; while to the perverted moral sense of the schoolmaster, sitting still is one of the chief virtues of the school-room. The kindergarten has adjusted itself to this biological fact; the school has not.

After the reflexes have arrived at a fair degree of maturity, the sensori-motor level reaches a stage of rapid maturing; and this is the time when sensori-motor co-ordinations should receive special attention, and emphasis should be laid, in gymnastics and in manual training, on this phase of motor training. During these two stages it is easily possible to lay too much emphasis on purely intellectual work, and especially on those forms of intellectual work which involve minute analysis and complicated reasoning processes. There has been much waste of time in ambitious schools in attempts to train children to do things with difficulty a year or two before they could have done them with ease.

The brain itself is not a single organ but rather a congeries, or group, of organs, evolved at different stages in the animal series; and these different parts, or organs, mature at different times. The sensory centers mature relatively early, and in the order already stated; the motor centers mature during childhood and youth; while many of the association areas, which effect the higher thought processes, and co-ordinate them, mature comparatively late.

It is, furthermore, a biological law which education can not violate with impunity, that nerve centers which are the products of comparatively recent evolution, not only mature later than those which are biologically older, but they are also less stable, more easily fatigued, and suffer more readily from disease all thru life.

For this reason the aim in education should be to throw upon the lower levels all the work which can be done by lower levels, and reserve especially the highest level for the work which it alone can do. This involves the question of training children to do mechanical work mechanically, and not stopping short of this in their training, and obliging them to do all thru life with a greater or less degree of self-consciousness that which should be done unconsciously, or at least with a minimum degree of consciousness. This applies especially to training in language. Pronunciation, the grammatical construction of sentences, punctuation, capitalization, and spelling should be made as much as possible unconscious processes. A child has not been trained to spell when he knows how a word should be spelled, but when he can write it automatically. In short, children should be trained to spell and write mainly with the spinal cord, so that the higher thought-level may be free to expend all its energy in formulating the thought to be expressed. To set mental energy free in this way for legitimate thinking which would otherwise have been wasted in supervising the mechanics of expression is equivalent to furnishing brains—the proverbially impossible thing in education.

THOMAS M. BALLIET, Ph.D.
Dean University School of Pedagogy.
New York University, New York City.

Education is the alkali by which we hope to neutralize as much as possible the acids injected into the lives of many children by a deficient social system.

Every educated individual is a distinct addition to the wealth of a State.

The more universal education is in a country, the better for that country in the competitive life of the world.

After school days the world takes the individual in hand. Education seeks to avert the results of the rougher pedagogy of the world by supplying that which will enable an individual to find the shortest route to his best place in life, and to do his best work in that place.

The Course of Study

Reading. II.

METHOD.

There are many "methods" of teaching reading to beginners, all of which however fall into a few classes determined by the unit of study, whether the letter, the sound, the word or the sentence.

The alphabetical or spelling method was in universal use until comparatively recent times. This is hardly worthy of being classed as a method. It is merely the unconsidered way in which reading was taught before scientific method had received serious thought. Its unit was the letter as named, and as combined on the printed page with other letters into words. The spoken word, the oral significance of letters, were scarcely even thought of.

As the first step in learning to read, the children "learned their letters" by name and appearance. Next they learned simple combinations as *a-b ab, b-a ba* always arbitrarily and without conscious recognition of the sonant value of the letters. It is probable that there was, at least in some cases, a subconscious recognition of sound values, especially of vowels; but if such recognition existed it never advanced into consciousness. The child never became aware of a synthesis of sounds in *bat* differing at all from the names *be-a-te.*

Yet tho the process was unnecessarily slow and painful, children learned to read by it, relying on memory and sight. Its great defect was not its awkwardness and slowness but what is still the great defect of all its direct descendants, namely, that "reading" in its earlier stages was not reading at all, but merely calling syllables and words. With the development of educational science in the latter half of the nineteenth century, reading naturally received early attention. The faults of the old way were manifest to even shallow observers. Hence many teachers set about devising new methods.

These efforts fall into one or other of the two classes into which all modern methods of teaching reading fall—the one logical, the other psychological. The former takes as its unit the sound of the letter; the other, the whole word or sentence as expressing an idea or a thought. There are several so called methods for which their authors claim great merit, in both of these classes. Some indeed claim the merits of both classes.

It is necessary therefore to bear in mind the fundamental determining difference, which is the door of approach, whether the sounds of the letters or the ideas or thoughts represented by the symbols.

PHONIC METHODS.

The various phonic methods, by whatever special name they are called are the direct development of the original alphabetical method. The sound of the letter has taken the place of the name, and the synthesis of sounds making the spoken word has become conscious and purposeful. The aim is simple, to secure the recognition in the graphic symbol of the word already familiar as spoken. The method is logical rather than psychological. That is, it follows the orderly development of the word considered as a mechanical structure and not the laws of growth of the mind of the child nor his natural way of learning. The earliest of these methods to gain general recognition was called correctly "the synthetic method." It was more radical than any of its successors. The first step was the recognition of the sounds of the letters. To secure this much drill was given upon single letters. Then these were combined by sounds into pronounceable groups, which were sometimes words, sometimes recognizable syllables and sometimes mere meaningless aggregations, usually representing "families" as the *at* family, the *op* family and the like. The children were drilled upon such lists as,

at
bat
cat
dat
lat

In order to make possible the study of all the sounds of the letters, an extensive and intricate system of diacritical marking was employed, creating practically a new alphabet in which every sonant element of English words was represented by a character.

Later these phonic groups or "phonograms," were used in the building of words, after which children were put into reading.

This was a carefully thought out and logical system. Within certain very manifest limits it produced noticeable results. Undeniably children acquired extraordinary facility in using the marked letters to build the family—the combination of sounds—unhampered by any consideration of purpose. They worked for synthesized sounds and they got them. Moreover the facility acquired was of real service in the detection of new words as they occurred in the reading lesson. For a time the apparent progress of the children was truly astonishing.

The defects of the system however were no less notable. One of them has already been mentioned as the greatest defect of the alphabetical method, namely, that reading was not at first reading at all but merely calling words, the meaningless repetition of synthesized sounds, and all the characteristics of the old methods were present, the hard voice, the uniform modulation, the pause between words, the unvarying stress upon all words important and unimportant.

Then when introduced to words without diacritical marks the children were somewhat like cripples whose crutches had been taken away. If took time and effort to reduce the alphabet to the conventional twenty-six letters. So even in the matter of time, the apparent saving at the beginning was often lost in the later delays incident to really learning to read. Moreover the desirable influence upon all the later reading of the first impression that reading is getting thought was, of course, forever lost.

Perhaps the most peculiar result of this phonic method was that upon spelling. It seemed practically impossible for children accustomed to the luxury of a complete phonetic alphabet to ever adjust themselves to the peculiarities of English orthography. The truly "phonetized" children continued to spell, years after, in a manner that would have rejoiced the heart of the laird of Skibo.

The purely synthetic method, tho heralded as the great emancipator from the bondage of the primer did not long survive, but it left a healthy family of descendants more or less resembling it, which we still have with us.

In general these have uniform characteristics. They are mainly analytico-synthetic. The sounds, instead of being stated arbitrarily as belonging to certain letters are "developed" from words and then recombined: *rat*, becomes *r-a-t*, the sounds only being given. The "family" relation is still maintained, but the combinations made are strictly of words, the meaningless aggregations of sounds such as *dat* and *lat* being no longer allowed.

This change indicates a tendency on the part of the advocates of phonetic teaching toward sounder educational principles. The representation of a whole word is at least a partial recognition of the way a child naturally learns things. It is to be feared however that even yet in too many instances the word is presented as representing a combination of sounds rather than as the symbol of an idea. The word *rat* does not stand so much for the interesting if unpopular little rodent whose name it is, as for the synthesis of the three sounds represented by the letters *r-ă-t*.

There are so many further modifications or so-called phonic reading that it is impossible to follow them. Surely even Mrs. Pollard would be unable to recognize some of the descendants of her scheme. But these modifications are all in more or less full recognition of a psychological basis of teaching. Some go so far as to present entire sentences and even whole verses for inspection by the children—a sort of by-guess reading—and to encourage the recognition of some words as words before taking up the phonic analysis. Every step toward making reading always reading, the getting of thought, and using all mechanical devices merely as aids, is encouraging.

Of course it is claimed that this is the purpose of phonic systems. Doubtless in the mind of the teacher it is, but in the mind of the young child the manifest aim is the real aim, and untold harm is done in our schools by presenting continually secondary ends rather than primary. This error is common not merely in the reading lesson but in other subjects as well and especially in creating motives for study and even for conduct. The eye of the child should whenever possible be kept upon the real end in view. This has an immediate bearing upon the creation of ideals and the development of character. In many instances it may be impossible to do this; the real end may be too remote and abstruse for the child to grasp, but usually it is possible—certainly in many more instances than our school practice would indicate. In teaching reading it certainly is not only possible but easy. Reading can as easily be reading as the mere calling of words.

Even with this higher consideration aside there are fundamental linguistic reasons why "phonics" can never be the real basis of instruction in reading. Our language is not a phonetic language. Because of its history, of the many elements that have entered into its composition, and especially of the distortions that it has suffered at the hands of early ignorant printers and of many pseudo-philologists, a very large part of its syllables are purely arbitrary combinations of letters which must be committed to memory, without aid from logic, science, or even executive order. So large a part of the words in common use are thus irregular that attempts to form scientific classifications, instead of aiding the memory, merely cause confusion.

Take for instance one of the most reliable of the rules, that a final *e*, silent after a single consonant, lengthens the short vowel preceding the consonant. This is usually given to children very early as one of the laws suitable for the consumption of infant minds and it is one of the guide posts to the foreigner trying to thread his way among the cross roads of our language. The start is nimble: tap, tape; rip, ripe; cap, cape; and so forth. But soon comes tare, hare, bare, and perhaps thirty more. Well, we will classify these as an exception and go on.

We have not gone far when we run upon dove, love, above, and a long list—another exception. And so with halve, calve, salve, and the like, and then live, give, are, were, and the rest, until the exceptional instances seem to outnumber the regulars. And yet, as I have said, this is one of the most reliable of the rules; indeed it is almost the only one of sufficient embrace to be of much consequence. From this comparative regularity all the way to *ough* with its seven different pronunciations is a road strewn with "troubles." The diacritical markings are merely danger signs, useful so long as they remain, but leaving panic when removed.

Is it not vastly better to teach reading as reading and get such assistance from phonics as we can than to overwork this valuable aid, misrepresent values, and fail of at least the higher results?

PSYCHOLOGICAL METHODS.

Of the psychological methods of teaching reading to beginners there are two general classes, one taking for its unit the word, representing an idea, the other taking the sentence, representing a complete thought. In both the meaning of the word rather than its phonetic composition receives the first consideration.

THE WORD METHOD.

The word method in operation is simplicity itself. A familiar object is presented before the children and named by them. The name is then written on the blackboard. Thus the written and visible symbol of the name of a familiar object becomes associated with the same name as known to the ear. The child becomes, as to the word, eye-minded. After the names of several objects have been learned in this way, a few necessary connecting and descriptive words, as verbs and adjectives, are taught. Thus the child becomes possessed of a small working vocabulary. Next sentences are constructed of these words and read by the children. So far the process is one of simple word memory. The words are treated as wholes by themselves and at the same time as parts of a sentence. Here lie both the strength and the weakness of the method.

TESTS OF WORD METHOD.

The real tests are two. 1. Are the pupils to go on indefinitely memorizing new words as wholes, Chinese fashion? 2. Can the words treated thus independently be united smoothly into sentences, so that reading shall be repeating thoughts and not merely calling words?

SPELLING A NECESSITY.

As to the first, naturally the words must ultimately be broken up into their sonant elements and these elements used in building other words; that is, children must learn to spell and to recognize new words by spelling before rapid progress can be made in learning to read. Here comes the claim of the phonic teacher. By phonics the children learn these sonant elements of words and are made independent in reading new words. This would be true enough if our language were a phonetically regular language, but it is not, as has been stated above, and attempts to teach by phonetic system when such system includes so little, results in artificiality and teaching much that "isn't so." Children who learn to read by the word method must largely learn to spell. But this spelling must be in the old-fashioned way of memory aided here and there by those few phonic facts that are of general significance. Some of these may be taught by rule, tho the many exceptions are likely to make most of the rules confusing rather than illumining. Most of the phonic facts will be grasped by the children by a sort of unconscious generalization. Colonel Parker, who was an advocate of the word method, used to insist that this unconscious generalization was sufficient and that the children needed no special drill in phonics.

HOW CHILDREN LEARN.

Of the two, a purely phonic system and a word method with its spelling unaided by formal phonics, the latter rests unquestionably on a sounder psychological basis; it is more nearly like the way in which children acquire their first knowledge of the world in many phases. The most familiar objects are learned first singly by memory alone. Then the mind unaided forms a simple generalization. Acquaintance is first made with Towser, the family dog. Then every dog is Towser. Later Towser and all the rest become *dogs*. But the generalization was first made unaided and unconsciously, when the neighbor's dog was called Towser.

Whatever may be its other faults or merits, the word method unquestionably employs the same unit and order that the child uses in learning to talk. The baby first recognizes objects thru action upon some one or more of the senses. Then he comes to associate with these sensations certain regular impressions made upon his auditory nerve, until at length he knows the word heard as belonging to the object. Later, after much effort, he learns to utter the word himself, and this without any conscious analysis of it into its sonant elements, without any instruction as to the character and mode of action of his vocal organs.

WORD METHOD NATURAL.

This method, using the whole word as the unit of instruction, is the purely natural method; other methods, called natural, are really artificial attempts to substitute the laws of logic for those of infant development.

MAY BE AIDED BY ANALYSIS.

The word method however may be greatly aided by an analysis of the words, after a sufficient vocabulary has been acquired, and reading has so far advanced as reading that the children may with profit turn aside to consider analytically the material with which they are dealing. There should be much spelling of words, both oral and written, both by letters and by sounds. Words too should be grouped for spelling according to their phonic elements, as bar, car, far, mar, to be followed by bare, care, fare, mare—but this without the formal rule which requires an explanation of the troublesome exception. All that is valuable in the analogies will be grasped unconsciously thru the association.

Other useful exercises are writing and observing words with and without suffixes and plural forms, as bird, birds, think, thinking, and especially as divided into syllables. Uncertainty as to syllabication is perhaps the greatest danger from the word method, and needs to be carefully guarded against both in enunciation and in writing.

MARKING SILENT LETTERS.

Rules, however, for all of these facts may well be left for the language lesson. Indeed, they are of much greater consequence in the complementary art of writing than in reading itself. There is one so-called aid to reading that is especially vicious. I refer to the writing or printing of words with the "silent letters" crossed out. Such a device may be resorted to by the teacher, occasionally, when writing on the blackboard, merely to save time. But the presentation to children in the first stages of learning to read of a printed page containing words having some of the letters crossed off is to give false impressions of the *looks* of the words at the outset and to prepare the way for future trouble. Because whatever may be the value of "phonics" as an aid to reading, reading itself, as practiced, consists in instant and rapid recognition of words as wholes, and it is of the utmost importance that children get correct impressions of words as they *look* on the page. The sole value of phonic analysis at its best is in aiding children to call correctly new words, but when this aid perverts the appearance of the word it becomes a hindrance, and stands in the way of ready reading.

THE SENTENCE METHOD.

A third class of methods for teaching beginners to read is based upon the use as its unit of the sentence, representing a complete thought. This it like the word method in that it is psychological rather than logical. It differs from it in treating the child as having advanced beyond the stage when knowledge comes in single unconnected words to that when he both comprehends and uses the complete sentence—the statement, the question, the command. The step from *doll*, *milk*, or "This is my doll," "Give me some milk," is psychologically a very long one, but it has been taken long before the child comes to school.

The sentence method recognizes this fact and presents to the children as the first reading lesson the complete expression of a thought. The thought is naturally a very simple one and the sentences at first very short. But they are sentences and the first reading of them is genuine reading and not merely calling words. Whether the first lesson is "This is Helen" or the command "Run," speaking it as a whole is reading. The very first impression of the act of reading is the true one. There is nothing to be undone afterward. The painful effort to make real words of the synthesized meaningless sounds, or to group the words into whole thoughts, is spared. This is certainly great gain.

DIFFERENT BASES.

Some teachers by the sentence method would use first sentences made by the children and written upon the blackboard, "Hot from the anvil," so that the children may recognize the symbols of their own spoken thoughts. This plan is sure to produce vivid impressions and give a vital interest to the reading lesson.

Others would have the first lessons descriptive of an act performed by or before the children, or of a command to do something, as *run*, *jump*, *Open the door*. This also makes reading vital and insures interest. It makes it possible moreover to make the first sentence very short; even one word will suffice for a command.

Of course these first sentences must be followed by many more in which the same words are used in many different relations. Some teachers would develop the words first. This is almost a reversion to the word method. Others would merely see to it that the words are recognized wherever they occur. These are matters of detail.

STUDY OF WORDS MUST FOLLOW.

The reading of sentences must be followed however, later, by the study of words and the various spelling exercises suggested to go with the word method.

On the whole I incline to the opinion that the sentence is the best unit in teaching reading, that it makes reading more natural and more interesting; that children taught in this way are more likely later to grasp whole phrases and sentences at a glance, which is the secret of economical and appreciative reading.

LARGER UNITS.

Indeed some radical teachers favor presenting first entire paragraphs or rhymes for indefinite recognition, that the impression of *wholeness* may be made very strong. While a very able teacher may succeed with such a method, it is to be feared that in the ordinary school it would result in vague, unprofitable guessing at words.

So much for method at the beginning. Is nothing to be said as to the conduct of the reading lesson beyond the primer and first reader stage?

READING IN HIGHER GRADES.

The intermediate grades really offer very interesting problems. As a rule they are the weakest spots in our schools. The beginning and the higher grades have received much more thought, much more scientific study. Yet in these intermediate grades the future tastes and inclinations of the great majority of the children are determined, in so far as the school determines them. If the ability to read rapidly, with comprehension and with appreciation, as well as taste for good reading, are not secured in these grades, by far the larger part of the children in our schools will never secure them.

RAPID READING.

First children should learn to read rapidly, "to themselves." By this I mean that they should be trained to grasp quickly the sense of sentences and even paragraphs without dwelling upon each word. This ability is of especial value in reading newspapers and other current reading matter of an ephermeal character, as well as much literature of a better sort, especially fiction. Of course I do not mean to say that there are not books that must be read word for word, with the utmost care and deliberation, but such books are few and constitute a very small share of the reading of most people. Most of what we read perforce does not justify careful and slow perusal, and there is great waste in reading it one word at a time. One sometimes sees people of apparent intelligence reading newspapers, the moving lips showing that each word is being mentally pronounced. Such people have not really learned to read. The first essential to comprehensive reading is the ability to pick quickly the salient words, those which hold the key to the thought. This ability can be secured only thru much practice. A good exercise to this end is to give the members of a class each a different paragraph or brief passage and allow a short fixed period for reading and then to require them to give the substance of the passages read in the fewest possible words. If the thought has not been grasped by any one, ask suggestive questions and let him try again. Such an exercise frequently repeated tends to develop comprehensive and rapid reading.

Naturally such a method cannot be applied to poetry or to the best oratory, nor indeed with equal profit to the finest literature of any sort. A true literary artist makes every word tell and if the art is applied to a worthy subject every word should be carefully read. The reader who attempts to "skip" in reading Emerson or Browning or Tennyson is likely to lose the best things.

READING WITH APPRECIATION.

This leads to the second point to be emphasized in reading in the higher grades, reading with appreciation. This is a very different process from the hasty reading of the daily news or the best selling novel. It involves a sympathetic spirit, catching the author's feeling, as well as comprehending his thought.

To take an instance from well known literature, Lincoln's Gettysburg Speech. The beauty, the literary finish, the power of this great work of art must be felt; it is quite beyond the mere intellectual comprehension. Hence in the reading class, before attempting to read it, the setting should be made plain, the momentous struggle, the sad significance of the occasion, the heavy weight upon the great heart of Lincoln. Then the class is ready to read with subdued solemnity the noble words. Then each sentence and each word may be studied to see how in so few words such great thoughts were uttered.

Webster's Bunker Hill Speeches furnish another example. So do Moore's lines:

> When day with farewell beams delays
> Among the golden clouds of even,
> And we can almost think we gaze
> Thru open vistas into Heaven,
> Those hues that mark the sun's decline
> So grand, so beauteous, Lord, are thine.

Solemnity, beauty, awe should all be appreciated and felt while reading.

"Paul Revere's Ride" on the other hand requires a quite different spirit on the part of the reader, and "The Wonderful One Hoss Shay," a very different feeling indeed.

Not to illustrate further, in the reading of choice literature, such as fortunately constitutes the greater part of the material found in most higher school readers, the aim should be to secure appreciative as well as comprehensive reading.

READING ALOUD.

One of the best means to this end is reading aloud. This is especially true of poetry. This should include reading aloud by the teacher to the children, as was said in the former article.

The feeling of good literature can be fully brought out only by the human voice, especially the rhythm of poetry.

The older pupils can easily be trained to use their voices to express lightness and mirth, serious earnestness, beauty, awe.

PRELIMINARY PRACTICE.

It is well before reading a long selection of a certain dramatic character to practice upon short passages illustrating a similar phase of sentiment.

For example, for practice in light and cheerful sentiment, not humorous, the first lines of Whittier's "To a Barefoot-Boy" is excellent—with the element of humor added Cowper's "John Gilpin's Ride." Few more serious thought, the earlier stanzas of Gray's "Elegy" are fine reading, for more tender feelings, comprehensible to children, lullabies are good, such as Tennyson's "Sweet and Low." For developing appreciation of the awe-inspiring there is nothing better than Moore's lines quoted above. The point is, the children before reading good emotional literature should be put into the proper frame of mind and by practice should have their voices and their manner of reading adjusted to the spirit of the selection.

GRASP OF THE THOUGHT.

For reading aloud effectively it is necessary not only to be in the proper psychic state and to have voice and manner properly adjusted, there must be an especially good grasp of the thought of the matter read.

EMPHASIS.

The salient words must be picked out for emphasis. Given the proper feeling, emphasis is the key to good oral training.

A good exercise is to select passages and have the class decide by discussion and experiment what words should receive first and what ones secondary emphasis; for example in Macbeth's:

> If it were done when 'tis done,
> Then 'twere well it were done quickly.

Should the emphasis be on *were* or on *done?* For secondary emphasis, should the accent be on *then* or *quickly* or both? A little of such practice will make the pupils keen to "see the point" of what they are to read.

But not merely words are salient; sometimes whole phrases or sentences even, in which no particular word needs to be emphasized, convey so much of the author's thought that they should receive especial emphasis. For example, the sentence:

> She looked down to blush and she looked up to sigh,
> With a smile on her lip and a tear in her eye.

is divisible into four parts, each one of which is important, but no single word stands out enough from the others to require particular stress. It should be read evenly.

For reading aloud the needs are first to get into the spirit of the piece, second to grasp its whole thought, third to select the proper words and phrases for emphasis. As a preparation for all of these there should be drill in reading similar short sentences and careful study of the piece itself.

FINAL RESULT.

The great final result of the reading lesson should be a love for good books. By every possible means appreciative taste should be developed. Then the children should be led from the reading book to the world of books. The single selection should create the desire to read the book from which it was taken.

The public library should be the chief ally of the teacher of reading. Reading should always be reading. Even with beginners such methods should be employed as will focus attention on the thought. Reading should always be getting thought.

The reading lesson should be the key to unlock to the children a treasure. It should always be a joy, never a task.

C. B. Gilbert.

Western Reserve University.

The Teaching of Commercial Geography

COMMERCIAL GEOGRAPHY" is the most common student name for the course which appears in our catalogs under the more cumbrous title of "Physical and Commercial Geography." A sketch of the origin of our activities in this field may serve as a partial explanation of our viewpoints respecting a subject which is commonly taught in a different way.

The germ-course, which constituted our point of departure, was one labeled "Environmental Influences on Man," given in conjunction by a member of the department of Geology and one from that of Anthropology. Our course was given the first year to a very small class, and, as is so often the case, it was the instructors themselves who profited most from the instruction.

At any rate, we became thoroly convinced of the value of a common introductory course to our two departments. It became increasingly clear to us that a study of man in relation to his natural environment lent a welcome human interest to geography and geology; and, conversely, that the study of natural environment in relation with man provided a substratum of hard fact back to which to refer any elaborate theorizing in the field of anthropology and the other social sciences, and history. The natural science side, we felt, was made more human, and the social science side more solid and trustworthy, if they were considered together, and with constant reference from one to the other.

Some of the earlier topics considered by us were: the influences upon the development of civilization, of climate, of flora and fauna, of topography, of the distribution of water, and so on. And, in casting about for some definite and tangible subject around which, for purposes of teaching, to assemble our materials, we hit upon the fact that they all came into a more or less close relation with the development of exchange. For the articles which are carried by the currents of trade are things which man, in his struggle for existence, has learned to derive from nature under the conditions given him; that is to say, they are foods, materials for clothing, etc. The very form and character of the struggle for existence, as revealed the apparatus and organization of industry, is bound to conform to the conditions set by nature. The inhabitant of the Arctic pursues a struggle for existence (and invents an apparatus to aid him in it) which is different in many essential respects from that of the dweller in the hot desert; and both live and work far otherwise than does the inhabitant of the fertile, temperate river-bottom. But the products of the several local areas, owing to their necessarily uneven distribution, already in the remote past began to move from tribe to tribe. The streams of trade, thus constituted, and now grown into world-wide currents, thus afford a sort of index of man's varied fortune in reducing nature, or, rather, in learning natural laws and conforming his life to them. The instances and principles of our original course seemed to emerge in a more suggestive and attractive light when developed in connection with so definite and vital a subject as that of trade—its materials, ways, and history. And so we named our elementary course Physical and Commercial Geography.

It will be observed, from what has been said, that we approached the subject of Commercial Geography from the purely scientific and unpractical side. In this we differed from most of those who have developed subjects of the same or allied names. The more common viewpoint of Commercial Geography is that of the prospective merchant rather than of the physical or social scientist; and the general run of text-books clearly witness to this fact. They contain descriptions and statistics of trade, arranged for the most part by countries, and obviously calculated to show the relations between political units rather than those existing between natural or physiographical divisions of the earth. One of the normal tendencies of such arrangement, it may be noted, is to lend support to the already too popular notion that trade is a thing dependent, as to its nature and course, upon the manipulation of man; that it is determined in these respects by human policies rather than by *the inter-play of natural forces.* To this narrow view we were led, by training and viewpoint, to offer opposition.

Some of the regular text-books have recognized, it is true, the controlling conditions of physical nature; they contain prefaces, mostly perfunctory, setting forth general observations as to the influence of climate, topography, and so on. But, in our experience, such introductory remarks bore little fruit, not being followed up and reiterated at the proper and apt occasion, that is to say, while the actual descriptions and statistics were being presented. What we have done, therefore, has been to supply, regularly and untiringly, often doubtless with an insistence painful and even revolting to our students, the general principles back to which the facts of their daily text-book assignments could be referred.

To some of these general principles we shall presently come. But before we could do much with general considerations, we found ourselves confronted by the hard reality that our students knew little or nothing about physical geography; and not only that, but that they did not know the old-fashioned geography which pedagogs now gone to their well-merited rest had forced into the heads of preceding generations. One student, for example, was authority for the precarious statement that St. Petersburg was the center of a flourishing tobacco production. We pursued this clue. We found that he had casually read "Petersburg" upon his canister of tobacco, but had not chanced to notice the abbreviation "Va." after it. Now, we like the type of student who can thus focus his available stock of information; the quality of bluff, like that of mercy, droppeth like the gentle dew from heaven; but we don't like either to be strained. We wish to reserve the loftiest flights of the creative imagination for larger game.

I need not stop to inquire the why of this medieval lack of geographical knowledge; we always suspected that it was due to the invasion of the short-and-pleasant-cut-to-knowledge-system which became popular in America, if I am not mistaken, about the time that these hopefuls of ours were in kindergarten. We inferred that Alphonse had not been crudely and unpsychologically required to bound the State of Ohio, for example; but had been, in the midst of a series of diverting and edifying impressions—during the pauses of his doily-work—caught, metaphorically speaking, with his mouth open for the introduction of chance bits of properly sterilized mental food.

Well, to remedy this, the atlas became the badge of the course; it was little short of a misdemeanor to be caught with it off the person. And map-work was required in profusion, the students being obliged to fit out outline-maps with names, colorings, and the like, indicating areas of distribution of minerals, plants, animals, and men. And, in order to increase the definiteness and concreteness of their impressions, we have striven to lay the foundation for a working-collection of the materials of commerce. Our nucleus in this line, at Yale, is the Portland Exhibit of the United States Bureau of Plant Industry, now installed,* together with smaller acquisitions, in the form of a Commercial museum.

SOME GENERAL PRINCIPLES OF COMMERCIAL GEOGRAPHY.

I now turn to the more impersonal question of general principles and their application. Of these I can summarize only a selected few. But if their utility in putting life into dry facts be recognized, further possibilities along the same line will crowd upon the mind of the teacher.

In any study of the geography of commerce, one begins perforce with the natural distribution of the materials of commerce; for, roughly speaking, the materials are here or there on the earth's surface, or beneath it, and man must go and get them, if he wants them, where natural forces have placed them. This is obviously true of the commercial products which are inorganic by nature; you do not normally carry coals to Newcastle. Mineral wealth has been distributed once for all, for ores cannot be transplanted, or grown, even under the wing of the protective tariff. Hence one is driven back upon such general scientific principles as explain the presence of ores and minerals, if one cares to do more than memorize unintelligently the localities in which they are found. Here Commercial Geography has need of the geologist's aid. If we know that the Bermudas are built of coral rock, we can dismiss them once and for all from the category of iron-mining regions; we shall not have to commit to memory as an unrelated fact that they do not produce petroleum. Or, to take a positive case—to one knowing the proximity of iron ore and coal in England, the reason for the remarkable industrial prosperity of that island has already ceased, in good part, to be a secret.

---

* This Exhibit has recently been temporarily removed by the United States Government, in order to show at the Jamestown Ter-centennial of 1907.

The case is similar, tho far more complicated, when the commercial products of the organic world are considered. The flora of the earth remains localized in good part, determining by its distribution regions of supply and demand, and so the tread of trade-ways and the courses of exchange. We do not pretend to raise Smyrna figs in New Zealand. And even if we do extend the culture of plants into new regions, we are always bound to find an approximately identical habitat into which to introduce them. The great drug Peruvian bark, demanding the drenching rains of clouds blown across the Amazon valley and spilled against the eastern slopes of the Andes, thrived but feebly in Jamaica, and did not find a new home until the enterprise of the British had ferreted out in their wide empire an almost exact duplicate of the original habitat and conditions. Tobacco of quality has always clung to lower latitudes, and considerable advance in the imitation of environmental conditions will be necessary before an American can remain strictly patriotic and yet not be confined to the Pittsburg stogie and the Virginia cheroot. Fortunately for the smoking jingo, the acquisition of Porto Rico and the Philippines offers a certain escape from a painful dilemma. Nothing whatever dampens many of these projects for smiting the accursed foreigner, except that they are generally physically so difficult as to become commercially impossible.

A similar attachment to native environment may be seen in the case of the fauna of commerce. The fur-bearing animal sticks to the colder regions, the cod to the Newfoundland Banks; commercial coral cannot be fished up off the shores of Long Island, nor can the camel, as experience has proved, endure the alkali-water, the cacti, the canyons, the coyotes, and the cowboys of the American Desert;—his stomach cannot endure the first; he cannot chew the second with impunity, nor walk upon it in his bare feet; he loses his head when he peers down large holes in the ground, not being used to them; the coyotes that insist upon nipping his heels make him nervous; and he has never come to enjoy the diversions of the ranchman in lossoing the several tempting protuberances of his knobby frame. Moreover, he frightened the horses, and had to be executed in general and in particular. He could not fall in cheerfully with a new environment.

It will be seen that the geographical distribution of flora and fauna is of prime importance in the study of the geography of trade. But it does not satisfy the reasoning mind to commit to memory the facts of such geographical distribution any more than those of the distribution of inorganic substances. The German sage urges us to "consider the What, but more the How." And since Darwin's time the excuse of ignorance of the *How* of plant and animal distribution has largely passed away. The student must be made familiar here with the struggle for existence in the plant and animal world, as rendered inevitable by the rapid increase of life. He must know something of variation and heredity, so that he may understand how the fitter survive while the less fit are cut off; he must see how, under given environmental conditions, certain types, and those only, are developed in nature. Then he is in a position no longer to be utterly staggered by the great mass of facts regarding the natural distribution of plant, animal, and man, but to comprehend their attendance upon wide-reaching principles. And if the test of science is prophecy, he may at length be asked to calculate the possible flora and fauna, not to mention the climate, winds, etc., of, say, an island whose latitude and longitude are given.

NATURAL SELECTION AND ARTIFICIAL BREEDING.

But, one will say, the plants and animals are not all confined any longer to their original habitats, nor, indeed, to identical ones: Burbank, of California, is going to make the cactus grow anywhere; by removing the spines from the plant he has obviated their lodgment in the tongue and throat of the camel; he has hardened the endurance of the fruit-tree so that it does not mind having its blossoms frozen; and so on. It is true that man has turned into the struggle with nature all the extraordinary power of his mind, and that he has made many apparent changes in plant and animal life. Out of one aboriginal variety of pigeon he has made, in the course of thousands of years, several score; he has bred horses and dogs for size, strength, coloring, power of scent, and the like. He has altered the materials of commerce, and he has changed their distribution-areas. Thus he has modified the direction and content of the stream of trade. Certainly the study of Commercial Geography must lead some attention to all this.

It is important then, to supplement the principles of natural selection with those of artificial selection and breeding. The latter processes are so striking in their results, and so commonly known, that it is almost more important to recognize their limits than to chronicle their successes. This is easier to do from the standpoint of commerce than it is from that of pure science; for commercial limits to all such manipulation of nature are set by *cost*. What is physically very difficult, tho perfectly possible, generally becomes commercially impossible. You *can* raise bananas in Connecticut, but not for the market; you *can* raise bears in a zoological garden, but not for their pelts. Recognizing such limits, however, to artificial modification and distribution of the materials of commerce,—if this modification and distribution are to form a basis for more than a mnemonic exercise, they should be studied in the light of the general principles of plant and animal breeding, as well as of the history of the spread of this and that product from its native habitat. These principles can be expressed in terms simple and homely enough for a child of the proper age to grasp in their essentials; such study would certainly form an admirable substitute for the infant study of biology or dynamic geology.

ROUTES OF TRADE.

But I must not delay longer over the materials of commerce. Other fruitful topics press for recognition, for instance, that of the routes of trade. It is enlightening to note the adaptation of land-routes to topography, and the extent to which, and the limits within which, man has been able to manipulate this topography to suit the convenience of his projected routes. Similarly with water-ways and their terminals: the rivers, lakes, mediterraneans, and oceans are ready-made ways of trade, where the surface is approximately level and the friction slight. The natural impediments in these ways, their currents, and the direction of the natural atmospheric motor-force which blows over them, or churns them into dangerous irregularity, have determined the paths of vessels and will long continue to do so, despite the increasing application of steam. To be sure, man marks the ways more safely, removes some of the worst obstacles, artificially improves the harbor-terminals, by the use of steam and electricity renders himself at least partially independent of some natural conditions, and, thru marine insurance, distributes losses so that they are less felt; but thru it all, he labors amidst a net-work of limiting natural forces; and his results can be truly comprehended only thru an understanding of the natural laws of which he takes advantage or by which he is conditioned. For the understanding of transportation one should also be versed in the history of its earlier and simpler stages, and of the successive advances in nautical technique. He will then see, for example, why enclosed seas have ever formed the cradle of exchange, and more especially, how the island-dotted Mediterranean nurtured up in turn the Phoenician, Greek, Roman, Venetian, and Spanish merchant-marines and commerce, until, in the fulness of time, the ocean was entered and the modern world-traffic initiated.

HUMAN CONDITIONS.

But it is not alone these forces in physical nature (and many others that I cannot mention) that should be understood as a basis for an intelligent and comprehensive view of the life and distribution of commerce. Trade has its materials, which came from out the surface of the earth, and its ways which lie along it; but it has its *agents* also—*men*. And just as clear and intelligent comprehension of its physical conditions is indispensable to an understanding of its devious nature, so is a clear and intelligent comprehension of its human conditions, if they may be so called. Here is where anthropology joins with geology and physical geography in contributing to the geography of trade certain underlying principles and essential factors. So far as I know, this aspect of Commercial Geography has never been systematically taken up.

The dissemination of the materials of commerce is nothing if the character and distribution of producer, consumer, and exchanger be left out of reckoning. Taking the races of men as they are, it is evident, for example, that your Australian will not produce silk for the world-market, nor will he even buy razors for shaving purposes. He will hunt the kangaroo yet a little while, and then die off conveniently, so that the white man can pursue his course undisturbed. It is equally certain that the said white man will pursue *his* course undeviatingly, developing a production, a consumption, and an exchange of commodities on an ever wider scale. Without seeking here for the causes, it is clear that there are striking differences of temperament between races, and all degrees of aptitude for the development of commerce between the extremes cited. Dealing, as we may, in broad contrasts, it is possible to simplify this man-factor by distinguishing between the highly civilized races and those which are relatively or actually uncivilized. Roughly speaking, the former inhabit the easily accessible parts of the temperate zones; while the "native," as every one knows, occupies only such regions of the earth as are too cold, or hot, or unhealthful, or isolated, for the more civilized brother to come and hustle him off them. The only areas which support and protect a large population of a lower grade of civilization are the tropics. If, now, the inhabitants of the cooler regions were as indifferent to the destiny of the warmer ones, as the natives of the latter are to the fate of the cooler regions, we should have two grand divisions of the human race living a different life apart. But this has not been the case.

Thruout history the peoples of the temperate regions have manifested a deep interest in the products of the hotter areas and a decided tendency somehow to lay hand upon them. Migrations have tended regularly toward the south, and the course of exchange for many centuries lay between the south and north—or the east and west, as it once was, when the tropical products of the Indies came to Europe over Damascus, Beirut, and Cairo. The more wide-reaching of the environmental influences recounted above, chiefly climate and its attendants, have tended to create as great a divergence between the products of cool and warm regions as between the men: the yam and the negro go together, the coco-palm and the Polynesian, the durian and the Malay. And the torrid products, especially the spices, exerted, as luxuries, a tremendous attraction upon the peoples of temperate regions. They wished to get them, and centuries of history have been made about their effort so to do. But here they run counter to the peculiar disposition and temperament of the tropical peoples, and the result is one which cannot be understood apart from a comprehension of this disposition and temperament, especially as it is exhibited along economic lines.

Without attempting to describe this "lower" type of man except as he touches the subject in hand, he is marked, first and foremost, by a disinclination to labor. He is, therefore, no kind of a producer, having little foresight, living from day to day, and depending upon the bounty of tropical nature to satisfy his few wants. The economic stimuli which spur the "economic man" of the economic text-books elicit at most a quite disproportionate exertion. Trinkets and baubles did something until they became too common; alcoholic spirits did more. Some tropical planters are said actually to prefer bibulous laborers, for they are absent from work only once in a while; they drink up their wages and return for more, while the sober native saves enough in a few weeks to emancipate him from the need of further labor for a year. It can be seen that the orthodox way of stimulating supply, by higher inducements offered in consequence of increased demand, is here all but inoperative.

But the white man cannot normally produce, by his own efforts, in the tropical environment: hence trade is blocked. However, it must not be understood that other stimuli will not work where economic titillations are not sensed. A good drubbing used to do pretty well; and, as a system, slavery better solved the question of tropical labor, from the purely economic standpoint, than has any substitute for it. Demand here prodded the plantation-owner, the owner brought pressure to bear upon the overseer, and the latter took a stout stick and sallied forth to "demand" more output. But compulsion of this nature proved unpalatable to that portion of humanity which could make the other part stop it, and since emancipation a good many methods have been ineffectually put into practice to reach the soul of the benighted one who could not see the advantage of being strenuous. The commercial exploitation of the tropics has encountered in the tropical peoples a passive resistance and a dull inertia; qualities referable to environmental influences totally diverse from those under which the modern commercial system was itself developed.

So much for native production and supply. Nor do the native peoples demand much from the stream of world trade to which their contribution is so slight. They can use an occasional shirt or umbrella, a tall hat, or a pair of cuffs for the ankles; brass wire and other metallic products can still be sold in moderate quantities. But there is no volume to their traffic, and their trading methods are, from a European standpoint, incurably eccentric. Trade is a passion with many African tribes; but it is a pleasure too sweet not to be long drawn out. The German trader asks for ivory or an ox; and, after deliberation, a little tusk or a sickly beast is produced, and the owner settles down to the luxurious quibble and the noisy assertion. Each piece of goods must be dickered over separately for the maximum period; the seller must play his several rôles of heartsick disillusionment, virtuous indignation, and generous, if hopeless, self-sacrifice. Trade is viewed less as an economic operation and more as a forensic contest—as art for art's sake. Here is no demand-region to tempt large-scale commercial operations. Hence the development of tropical resources has been pretty largely outside of the legitimate, modern type of trade, as between civilized peoples of other climes; it has been too often ruthless exploitation and rascally robbery. That is the type which the environment brought forth—it is the frontier-type, outside the "protection of the market." One author tells of fur-trading which realized over $6,000 worth of furs upon sixty gallons of raw alcohol, mixed with water in the proportion of four to one, and dispensed at a buffalo-robe per pint. Such irregular exchange is, of course, a mere parody on modern trade, but it has nevertheless been approximated to in a sufficient number of cases to render the type a common one under specific conditions of civilization on one side and unsophisticated uncivilization on the other,—that is to say, under diverse conditions of the human factor. For the understanding of the "How" of trade, and for a perspective of its geography, some information calculated to clarify the student's conception of the human factor would seem to be indispensable.

Enough has been said, perhaps, to support a contention that in viewing man's activities on earth, and specifically those vocations which run out into the exchange of commodities, we are not wont to accredit in just measure the natural conditions involved. It is for a clearer comprehension of these conditions that our courses stand. It is not a fortuitous thing that the center of gravity of the world's commerce has been moving westward and northward until it rests within a western island-group, and even now threatens to shift across the ocean. It is not accidental that Phoenicia, Greece, Rome Venice, Portugal, Holland, and England, as the hour of their commercial destiny approached, turned their eyes toward the East; nor was it a movement of another kind that caused the right-about-face toward the West, of Spain. The background of all these movements was the human struggle, first for existence, and then for a more luxurious standard of living, the seeking of satisfactions where nature placed them, by men trained by nature to desire and acquire.

WHAT OF THE ELEMENTARY SCHOOL?

A single consideration remains. Assuming the value of the discipline outlines, is it available elsewhere than in college? Could the more elementary instruction profit by it? Of course the final answer to this query must wait on experience. What testimony we have been able to gather upon this subject is affirmative, and about as follows: the essential ideas of such a college or normal school course can be simplified for the young, rather indefinitely, without emerging as a diluted mush of unpractical pedantry. Even the very immature can be taught a good deal of the "How," for the abstract terms and the arguments in which the teacher thinks, can be made explicit thru examples and reasoning of the utmost simplicity. Certainly it is worth while, to whomsoever knowledge is imparted, to cut out brute memorizing by focusing facts, so far as possible and practicable, about the nuclei of more general principles. But be this as further experience shall show; in any case the teacher of Commercial Geography should be armed with principles of wider bearing and interest, in fighting his way and then trying to pilot others thru what has long been regarded by many as an arid and unteachable maze of unrelated facts.

Yale University. ALBERT GALLOWAY KELLER.

School Discipline

SOME thirty years ago the sand-bar at the mouth of the Mississippi had so increased that large and heavily loaded ships had to wait days and sometimes weeks before they could get out to sea. Millions of dollars were wasted in dredging: the biggest river in the world was more than a match for the dredgers. At last, an engineer came forward who undertook to uncork the mouth of the river and keep it open. His plan was ingenious. He had noticed that where the river was narrow the current was strong—so strong that it swirled all the mud thru instead of depositing it. Accordingly he saw that, if he narrowed the channel of the exit, the force of the stream would be so increased as to carry out with training walls the sand and silt and mud into the deep sea: the bar, once cleared, would never form again. And it was so.

Here we have in an apolog the whole problem of discipline; it is a specialization of energy for a predetermined purpose, a restraint deliberately imposed for the increase of power in fruitful directions, a straitening of the passage by law and ordinance that so thru the narrow gate there may be entrance into the ampler regions where there is the perfect law of liberty, perfect because spontaneous.

DISCIPLINE AS ENFORCEMENT OF DUTY.

There may be some children who have grown up without visible restraint, the promptings of their nature apparently wholly good, so that the moral habit seemed to be the natural product of relying upon "the genial sense of youth." But I doubt if, looking back upon our experience, we have known many such, or indeed any *masculini generis*. Speaking generally, the product of "As you like" is the spoiled child, the creature of self-centered mood and impulse, with no sense of obligation; and, speaking generally, the best men and women we have known have been the product of Puritanic homes and strictly disciplined schools.

Discipline, as the enforcement of duty, has its two sides—a negative and a positive, a restraint and a constraint. There is, on the one hand, the checking of weeds, the pruning of exuberant and useless growth. There is, on the other hand, the planting and fostering of serviceable plants; we have, in other words, admonition and nurture, and both these must go hand in hand. In the earlier stages of the negative side will be more prominent factor in training; in the later stages the positive. As the reasoning power and the moral sense come to maturity, "Thou shalt not" must be less and less; "Thou shalt" must be more and more. But the purpose of both is the same.

THE AIM OF PUNISHMENT.

From this two truths emerge. First, tho law is spoken of as stern and relentless, yet, compared with lawlessness or *laissez faire*, it is soft-heartedness itself. Leaving things alone in a boy society means the rule of the stronger—in other words, bullying; it means, as we can see from Tolstoy's experience as a schoolmaster, the utter negation of order, the utter absence of learning. Tho the enforcement of discipline inflicts pain of one sort or another, its whole effect is to reduce the amount of suffering, to protect the weak, to redress the wrongs of the injured, to realize Heaven's first law of order, without which no beginning can be made with teaching.

Secondly, the aim of punishment is not to retaliate, nor is it so much to frighten the child from repeating the offense, but to aid the evolution of the higher by the repression of the lower, by checking the lower to give the higher scope and room for development. And this in two ways:

(1) As regards the school society as a whole, to secure conditions under which the higher factors can operate—conditions of order and obedience and mutual respect. "You are to be hanged," as the Judge said, "not for stealing sheep, but in order that sheep may not be stolen." One sheep more or less does not matter; but that property should be insecure shakes the whole foundation of social action.

(2) As regards the individual, to curb the appetite and wayward impulse of the moment and substitute as motive for action reason, foresight, and a sense of duty; above all, to make the individual feel that an offense is an offense and lead him, by an appeal to his better self, his better reason, and his better feeling not to desire to commit it again, or, at least, to have enough self-control to resist the desire successfully; in other words, to form a right disposition or habit based on right understanding and right choice.

THE LESS "DISCIPLINE" THE BETTER.

Discipline is most effective when it is least obvious; it should be, so to speak, one of the things we take for granted—so fundamental that it is out of sight. The multiplication of punishments great or small is a sure symptom not that the master is a good disciplinarian, but that he is a bad one, because it is proof conclusive that punishment is not producing its desired result, which is the elimination of itself and the formation of right habit.

Our first duty here is to establish conditions which lead to the formation of right habit and the discouragement of offenses. If children are allowed to sit crowded together without adequate interspacing, we must not be surprised if their eyes wander and one copies from another. If ventilation is bad, or one school period follows another without pause, one must not be surprised if young bodies get restless. If there are times when there is nothing to do, what wonder that loafing habits and the loafing vices crop up.

WRONG MODES OF PUNISHMENT.

In the University Library at Upsala is the so-called Devil's Bible. The story is that a certain monk, who was always getting into trouble, at last committed some unpardonable offense and was condemned to die. He was given one chance: if he could copy out the whole Bible in one night he would be let off. He sat down and made a desperate attempt, but was just beginning to realize how hopeless it was when the

Devil entered and said: "You've done me many a good turn, I'll do you a good turn now." He helped him accordingly to get the copy done, and, at the end, drew his own likeness, the only authentic likeness of his Majesty we possess. The imposition, generally speaking, is so devoid of all meaning or redemptive quality, so mechanical and deadening, that I cannot help seeing the Devil's likeness in invisible ink on every quantitative imposition that is written, and invoking his aid to decipher the script of certain victims of the imposition system.

This idea that publicity adds to the deterrent effect of punishment still prevails in the navy and reformatory schools, and in other schools as well. It is a radically vicious idea. Tacitus, in describing some public executions of ringleaders after a mutiny, tells us that the soldiers rejoiced in the execution "as tho thereby making atonement for their own guilt." That is bad, but by no means the worst of it. A public punishment is fearfully unequal in its incidence: one boy feels the publicity so much more than another; moreover, it either hardens the offender and destroys his self-respect, or else, if he takes it gamely, it makes him a hero; as for the onlookers, it makes them insufferably self-righteous.

Another form of punishment that is wrong, because it misses the aim of all punishment, is nagging. To be perpetually girding at a boy is bad for both girder and girdee. Neither man nor boy can be moralized by a term of consistent misery. Some masters take a boy's faults and tie them to him, as a tin can is tied to a dog's tail; so that the harder he runs to get away from them the more he hears of them. "Now watch," I heard a master say the other day; "he will cry soon, he always does." If that boy, clearly a hypersensitive boy, was trying to gain more self-control, how much harder that master was making it for him to do so!

Anything that hurts a boy's more inward feelings defeats the aim of all punishment, because it alienates his will. Sarcasm —*i. e.*, sarcasm in the proper sense of the word, "lacerating speech"—he resents, and rightly resents as unjust. You score off him: he is not allowed to score off you in return. Any method of punishment that produces sturdy defiance or sulkiness is bad. May I say here how all-important is manner? Some teachers think because the pupils are young they may be treated *sans façon*. It is the greatest mistake in the world. Because they are young, therefore they are sensitive; because they feel more acutely, therefore gentleness of manner is more necessary in the class-room than in the drawing-room; in fact, nowhere are our manners, or, as Holmes would call it, our "surface Christianity," more on trial than in our relations with those who are placed beneath us. And the great question for each teacher is to combine severity with kindness, to make the pupil feel that your heart is tender, tho your principles are tough. The secret of success lies in manner.

FORBIDDEN THINGS.

In discussing details of discipline one has, in the first place, to draw a clear dividing line between things which are wrong in themselves and things which are wrong because they are forbidden.

I take first the latter—offenses against order, neatness, punctuality, ebullitions of animal spirit, and such points which, tho not morally wrong in themselves, prove extremely inconvenient if they are constantly repeated. It is in these small matters of system that home training usually breaks down, but a boy who is not amenable to personal discipline will submit willingly to the discipline of a system; and that is what a boy should feel when he passes from home to school—that he has passed under the discipline of a system. Our business, then, is to make these matters of management as systematic, as mechanically unerring as possible. Professor James tells us that certain disagreeable things which we have to do should be made habitual and as automatic as possible, that so our upper dome of consciousness does not need to trouble with them. To shave every day at a fixed time is no hardship; to shave occasionally when required worries our higher faculties to a degree utterly disproportionate to the intrinsic importance of the operation. The same principle applies to the minor matters of school. "Please, sir, I have forgotten my pen." "Please, sir, I have lost my sums." "Please, sir, my gymnasium shoe got behind the hot water pipes and has melted into my sandwiches." That way we know, and that way madness lies, unless it is stopped. Fix certain penalties and exact them with mechanical and feelingless precision. It is a mechanical habit one wishes to instill; enforce it mechanically. In this way, punishment may be both set and taken good-temperedly. So long as a boy knows that a certain offense brings a certain penalty he does not feel himself spited; he no more resents being kept in by the master than being kept in by the weather. Only punishment must be certain. If there is a chance of escape, even at the longest odds, a boy will risk it. He won't be deterred from whispering in class by the possible risk of a thousand lines, but he will by the certainty of thirty.

It helps the automatic, mechanical nature of this system if you make a boy register his own punishments. If a boy is given a certain task, make him forthwith write an I O U for the said task and file it on your file. He is then responsible for seeing that you tear up the I O U when the task is given in. He can never say then that he failed to understand, and the master is relieved of all the trouble of recording and demanding these pettier matters. But, above all make no exceptions, and never say that next time the punishment will fall. One is tempted to make an exception for a boy who, as a rule, works well, or perhaps has never been punished before. But it is a bad plan to yield to this inclination, partly because it is unjust—at any rate it looks like favoring—and partly because the whole system should be as unerring and inevitable as a chaff-cutting machine. The only occasion which justifies "next time" is a case where the law has not hitherto been clear.

As for methods, we ought to see as far as possible that punishment is not only proportional, but also analogous, to the offense. As far as possible carry out Herbert Spencer's idea of natural reactions, which was Dante's idea before Herbert Spencer; give your victim a world such as he has chosen for himself, let him work out the consequences of his own evil choice. The variety of ways of making the punishment fit the crime is endless, or rather it ought to be endless. We are not nearly as resourceful as we ought to be: we ought always to have a surprise up our sleeves, and, if it is a bit grotesque, so that both the torturer and victim can laugh over it, all the better. It is also best to get it over soon: that punishment is best which gets the unpleasantness over quickly. Nothing is so likely to breed bad blood as a congestion of punishment arrears hanging over a boy's head.

There is one whole class of punishment very effective and very humane—that is punishment by deprivation. One of the advantages of having half-holidays is that boys can lose them. The same applies to privileges of all sorts. They are things that can be stopped. Privileges must be earned. But on the whole the detention form of punishment is too indoor a business: by keeping boys sitting over books and papers we are frequently helping to reproduce the very evils we have set ourselves to cure. Keep the lighter touch for the lighter class of offenses.

It will save much punishing if you have a rough edge to your tongue. Most boys are very sensitive to what Isaiah calls "the rod of the tongue." Like the other non-metaphorical rod, it needs much care in the application of it. It is possible to be truthful and hard without being unkind; it is possible to have a temper and to show that you have a temper without losing it. Once boys discover that the dog has teeth they will beware of rousing him.

WRONG DOING.

Directly we pass from things wrong because forbidden, to things wrong in themselves, we must at once bid farewell to the doctrine of natural reactions. It is all very well for a child that takes liberties with a wasp to learn in the school of experience; but in real moral offenses Nature's reactions are so slow and so stealthy that they are too late to be of any use. Lying, dishonesty, impurity—these things have also their natural consequences, but those reactions are too late to save life: they are fruitful only of remorse. Light-hearted idleness, unthinking pleasure-seeking, "simple pleasure foraging for death," must be stopped from their foraging before they reach the inevitable end. The center of interest is shifted here. It is no longer a matter of repressing loose wayward instincts, or subduing animal spirits to wear the social yoke—it is the deeper, inner problem of understanding, enlightening, and, if it may be, redeeming, the errant soul. So much here depends upon personal qualities of the teacher that no prescription of method is possible. Certain principles, however, are essential.

1. Every boy is a complex of good and evil. Every wrong act is, therefore, the act of part of his nature, not of the whole. It is the resulting act of a conflict; it is, so to speak, the decision of a majority, oftentimes of a snap vote, and there is always present a minority which is right and disapproves as strongly as you do the act of the for-the-time predominant majority. Our business as teachers is to take sides with the good part of that boy which is in a minority and bring it to the ascendant—to reinstate the right will in its rightful place. It is here that lenity, easy goingness of any sort is so fatal. If the bad part goes away not cowed, but exulting in its impunity; if the better part goes away disappointed, we have failed in our prime duty as trustees of that boy's character.

2. No boy does evil for its own sake. It is a devil, not a man, who says to Evil: "Evil, be thou my good." No boy loves evil for its own sake: he gives way to evil for the sake of some good which he hopes it may bring him—some escape from pain, some increase of possessions, some advancement in the development of his being which he thinks it may be made to yield. He is first deluded.

The right treatment of more serious moral evils depends wholly on our understanding this, getting at this delusion and destroying it. What was it dangled in front of his eyes? Was that a thing wrong in itself? If not wrong in itself, where did wrong come in? Where was the exact point he left the rails? And, having once left the right line, how inevitable almost was the sequence afterwards, one thing leading straight to another!

Take the sort of case that is always recent because it so frequently occurs. A boy is found copying an exercise from another in the dinner interval. What he wanted was to be up-to-date with his work—quite a right thing in itself. When should he have thought of this?—Last night. Why did he not think of it last night?—Well, he did think of it; but there was something else more interesting—a book, a game. He meant to get up in the morning. Why didn't he get up in the morning?—Reason obvious. The first offense, then, is idleness, neglect of duty, not putting first things first. Then resulted an awkward predicament. An easy way out suggests itself which will smooth over the whole thing on the surface. This surface-patching is a common expedient: "there is a good chance of its getting thru undetected, and I'll never be such a fool again." But to carry it thru he gets a comrade into trouble. Here you have the diagnosis, and it is a great thing to externalize it, to get it set out by the boy himself before his own eyes so that he may see himself as he is, see how ugly he looks on the dissecting table. Then ask him which is better—that he should be caught and punished, or that he should go on? The second time is so fatally easy after the first. Is it better he should be arrested now, or be successful in vice, emboldened, and encouraged in it? And so we get to the idea of a new start.

Now, in order to get all this out of the boy himself, you must first believe firmly in the better self that is for the time being eclipsed. It is the better self that must make the step-by-step confessions. It is thru this better self that he must, so to speak, externalize his fault, see himself as he is, and so get down to the bedrock of inward truth from which he can start again. Your best way to get this out of a boy is to see him alone—these inner problems can never be handled in front of a class: your questionings there only hammer the lie deeper and deeper into the soul. As soon as you suspect cribbing, dishonesty of any sort, or a lie, make the boys see you afterwards, and see you alone, one by one, and begin by calling the better self to the front: "You had a good character when you came to the school. You have given me no trouble so far; I have always thought well of you." Mention, if you can, some good bit of work or play that he has done, anything that has confirmed your opinion. "That bit of a scuffle in class-room for which I punished you the other day—I didn't think anything the worse of you for that. That was mischief—all boys have got a spice of that in them. I used to scuffle myself; but this is different—this is a dishonorable thing. Tell me the truth about it; don't add one dishonor to another: speak the thing that is, and, tho I punish you, I shall respect you still."

This is a personal matter, and personal methods will be infinitely diverse; all I can say is I have found this way helpful. But this truth applies to all. Those who hate evil moderately are those who most rigidly exclude the evil-doer from their society and sympathy. Those who hate wrongdoing with a perfect hatred are those who hold it to be curable, and what they seek is not to hold the wrong doer at arm's length because they fear infection, but to get as close as they can, even tho it be with a surgeon's knife, that so they may help, may cure and restore.

"MAKE FREEMEN OF YOUR PUPILS."

I have left no time to speak of positive discipline; tho it is infinitely the more important side of the subject. But it involves the whole question of the corporate life and activities of the school. The positive suggestion is always more powerful than the prohibition. The way to teach kindness to animal is not to say perpetually: "Don't be cruel," but to give a boy a dog or pony as his pet to be kind to. The way to counteract the insidious cigaret is to make boys keen on games. The way to make boys scorn a lie is to have strong in your school the chivalrous sense of honor. And for this you must depend not on yourself, but on the boys themselves. You are not a shepherd of sheep, you are a ruler of men. Your discipline is a failure if it depends on you alone: it is a success if it is broad based upon your subjects' willing co-operation. Look at my problem at Manchester—the boys coming in by seventeen different railway routes daily from a radius of over forty miles; look at the hundredfold possibilities of a dinner hour in a school which has no playground. What staff of masters could possibly police it? There is only one way—to make freemen of your pupils, freemen who, if not, as Arnold would say, morally thoughtful, at any rate are habitually conscious that all their conduct concerns not themselves alone, but the good name and the good tone of their school; to make freemen, I say, of all your pupils, and responsible rulers of those senior fellows among them who are the natural leaders of the society, and whom I have always found, even beyond my expectation, willing, loyal, zealous coadjutors in all that concerns the moral welfare of their school society. J. L. PATON.

[Address before London College of Preceptors–slightly abridged.]

NOTE.—A brief report of the discussion of this paper at the College of Preceptors will be printed in these pages next month.

The cultivation of health stands first; a hopeful heart next; then vital ideals and rightly balanced interests.

Medical inspection is as necessary to school life as expert educational direction.

He who regulates his educational program by the appetites of adults as they are, rather than by the interests they ought to have, helps to aggravate existing evils.

Correlation; Co-ordination; Concentration. I.

I. Necessity of Correlation.

IN recent years this subject has been much discussed in educational books, papers, and gatherings. Two principal reasons are offered for the correlation of school work. One is that it saves time; the other, that a course of study should produce the effect of unity.

1. ECONOMY.—About a half century ago, when the American common school was gradually taking shape, the curriculum consisted chiefly of the so-called three R's. As time passed new demands were made upon the school by one interest or another. Thus were added history, geography, science, manual training, art, music, sewing, cooking, gymnastics, algebra, geometry, foreign languages, civics, military drill, temperance physiology, and in some cases bookkeeping, typewriting, etc. The result was a course of study enormously congested rather than digested—an aggregation of subjects promiscuously jumbled together, resembling nothing so much as a crazy quilt. Something had to be done to preserve the sanity of teacher and pupil; and so we have had two notable attempts to reform the course of study, both by the National Educational Association. One is known as the Report of the Committee of Ten, and deals with the high school program; the other is known as the Report of the Committee of Fifteen, and deals with the elementary school.

2. DEMAND FOR UNITY.—Aside from the question of economy, the mind instinctively seeks unity. A well-organized course of study must lend itself to this unitizing power, so that the total impression it produces may be that of a body of closely related facts and principles, rather than that of a multiplicity of independent facts. Furthermore, each subject is made more effective by being considered in relation to other subjects. Thus history, geography, language, science, and arithmetic may be made mutually helpful to each other. Geographical

details have their interest and significance increased when interwoven with related historical events.

The history of a war or battle becomes more vivid and clear if illustrated by maps, routes, and diagrams. Language work is more valuable when studied in connection with other subjects which supply its thought content.

In addition to the reforms inaugurated by the N. E. A., various theories of correlation and concentration have been advanced, and in some cases applied, by the followers of Herbart, by Colonel Parker, by DeGarmo, and by Dewey.

II. Theories of Correlation

1. DR. HARRIS'S THEORY OF CO-ORDINATION.

The Committee of Ten* did not deal with the question of correlation. It appointed nine different sub-committees on as many subjects or groups of subjects, each of which made a report in which are answered certain questions; as, for instance, Where should the subject be introduced in the school curriculum? How much should be demanded? What method of presentation should be employed? How much time should be allowed, etc.?

The Chairman of the Committee of Ten, President Eliot, of Harvard, received and edited the various reports, fitted together as best he could the various time demands, and thus constructed a theoretical program for elementary and secondary schools.

The Committee of Fifteen† dealt specifically with the problem of correlation, and we shall therefore briefly summarize its conclusions.

(1) *Report of the Committee of Fifteen.*—This committee contained some of the most distinguished educators in the United States. Its chairman was William H. Maxwell, then Superintendent of Brooklyn, now of Greater New York. It appointed three sub-committees of five members each; one on

---

*Report of the Committee of Secondary School Studies. Secretary N. E. A., Winona, Minn.; or American Book Co., New York.

†Report of the Committee of Fifteen. Secretary N. E. A., Winona, Minn.; or American Book Co., New York.

"The Organization of City School Systems," Dr. Andrew S. Draper, Chairman; one on "The Training of Teachers," H. S. Tarbell, Chairman; and one on "The Correlation of Studies in Elementary Education," Dr. William T. Harris, Chairman. The three sub-committees reported to the Department of Superintendence at Cleveland, Ohio, in February, 1895. Two of the reports have gone to oblivion, but the third, written by Dr. Harris, has become famous, and is usually spoken of as the Report of the Committee of Fifteen. As a matter of fact, it is wholly the work of Dr. Harris. Nor was it produced in a few days or weeks, for the author informs us that he began the report in 1870!

Dr. Harris begins by stating what he understands by correlation.

(*a*) It means, first, he says, the "arrangement of topics in proper sequence in the course of study."

(*b*) It means the "adjustment of the branches of study in such a manner that the whole at any given time represents all the great divisions of human learning."

(*c*) It means the selection and arrangement of the branches and their topics in such a way as to secure the unfolding of all the faculties of the child in the natural order and in a symmetrical way.

(*d*) It means, lastly and chiefly, the selection and arrangement of such subjects of study as shall give the child an insight into the society in which he is born. This conception of correlation is peculiar to Dr. Harris, and it will be well for the reader to note particularly the first sentence of this paragraph. It will be explained presently what these studies are which give to the child the coveted "insight." The selection of these studies can not be made on the basis of psychology alone. The child must conquer the civilization which constitutes his environment; and psychology can throw little light on the problem of what subjects best represent such civilization. This is an objective matter, and leads us at once to the study of *educational values.* To this consideration Dr. Harris next turns, and here he is at his best. Probably there is not a better discussion of educational values extant in English than this part of Dr. Harris's report.

What are the subjects of elementary education that represent civilization? The answer to this Dr. Harris furnished in an article supplementing the Fifteen's Report, and published in a magazine.*

(*a*) *Mathematics.*—The whole field of human knowledge is made up primarily of two parts—*nature* and *human nature.* The scientific study of nature requires quantitative measurement. Hence we require mathematics to represent this quantitative aspect of nature.

(*b*) *Geography.*—But the mathematical view of nature is not enough. The other is the biological aspect, or the conception and investigation of organic or living matter. The common school subject best fitted to represent the organic aspect of nature is geography. These two views exhaust the subject of nature, and they must be represented in every school program.

(*c*) *Literature.*—The study of *human nature* is accomplished, first, thru literature. The drama, epic, or novel shows feeling growing into conviction, then into deed; and thus exhibits a complete genesis of human action. The nucleus of a literary work is generally an attack of an individual upon an institution—State, Church, or Society—and thus furnishes a situation for a comedy or a tragedy. The method of study is sharply differentiated from nature study by the admission of a new principle; namely, *responsible individuality.* Hence the mathematical and biological methods are wholly inapplicable and absurd in the study of literature.

(*d*) *Grammar.*—Another view of human nature is given by the study of language. Grammar is not identical

---

**Educational Review*, Jan. 1896, p. 323.

with literature, but leads thru logic to psychology; while literature is a matter of feeling, thought, deed. Literature is chiefly ethical; grammar, chiefly logical. In short, grammar and literature have different contents and functions in the economy of the school-room. The literary method of study must not be applied to grammar, nor the grammatical method to literature.

(*e*) *History.*—The third method of studying human nature is the historical. History has for its content the formation of the State as the chief of human institutions. It narrates collisions of individuals and States with States. The method is again different from each of the other four.

The educator, in selecting the branches of learning, is to look not at the child, but at the *grown* man. Civilization reveals what adult man is. First find the branches and then study the child to learn how to bring him from his possibilities to his reality.

The five subjects we have named exhaust the departments of human learning. They are the five windows of the soul which must be opened and kept open in all schools from the primary to the end of the college course. The five are of equal value, and hence they are to be *co-ordinated* in the course of study, and by means of them the pupil will be best *correlated* with his environment of nature and human nature into which he is born.

2. Parker's Theory of Concentration.

Col. Francis W. Parker has a theory all his own, which is expounded in his "Talks on Pedagogics*," one of the most original and noteworthy books on pedagogy ever produced in America. The starting-point of his philosophy is the child; genetic psychology furnishes not only the norm for his method, but determines as well the subject matter of education and the arrangement of the branches in the course of study. In this respect, as in almost every other, he differs from Dr. Harris, who would derive the principles of method from child study, but not the course of study, this being determined by the history of civilization.

---

*A. S. Barnes & Company, New York.

(1) *The Central Subjects* (Course of Study).—The child, says the author, is the central problem of the universe, the climax and culmination of all God's creatures. He is to be studied as we study all phenomena, by his actions and tendencies to act. Standing by the cradle of a little child who has drawn his first breath, he asks, "What is this little lump of flesh, breathing life and singing the song of immortality? How must it act from the nature of its being? What are its spontaneous activities?"

One of the first stimuli to which the baby responds is music, or the mother's lullaby. After the cradle-song comes the cradle-story. The love of myth is a strong instinct. Myths are to the child what they have been to the race—the beginning of both science and religion—the imperfect apprehension of truth incident to a low stage of civilization. The experiences of family life furnish the psychological basis and real beginning of the study of history. It needs no argument to prove that children are intensely interested in the brute life by which they are surrounded—the dog, the cat, the horse, the cow, the bird, etc. Hence zoology is a part of the curriculum of nature. No less attractive is plant life. He loves flowers, and if born in the country, all the trees and shrubs, and grasses, and weeds from the strawberry to the oak. Hence he is naturally a botanist. He knows the forces of earth and air and water. He knows the forms of clouds and can foretell weather. In other words, physics and chemistry, the sciences of force, come within the range of his spontaneous interests. It goes without saying that a farmer's boy is interested in pebbles and quarries and the building of walls; hence it is plain that mineralogy is a part of his curriculum of self-education. Geography, too, is a matter of intense tho unconscious interest to a child. All the country round about is familiar to him—the brooks and hillocks and fields and woods being stamped in never-fading images on his brain.

These subjects, in which children are spontaneously interested, are to be the *central subjects* of the course of study. Out of these all other subjects, all processes, all intrinsic thought, must come. When we send a child to school, we simply continue the study of his environment, which he has himself begun. This is *concentration*—to make the subjects in which a child is spontaneously interested *bear upon his spirit* in such a way as to develop him in accordance with the laws of his own being. There is the child in the center; now concentrate upon him all knowledge in such a way as to call forth educative acts on his part, and thus you have "concentration" as it is promulgated by Colonel Parker.

The relation of the central subjects is illustrated by the following sequence:

(*a*) *Geography*—the science of the earth's present form.

(*b*) *Geology*—the science which explains the cause of the earth's form.

(*c*) *Mineralogy*—the study of the matter acted upon by geological forces.

(*d*) *Physics* and *Chemistry*—the science of force.

(*e*) *Meteorology*—the study of the changes wrought by these forces of nature in the atmospheric envelope of the earth.

(*f*) *Biology*—the science of living organisms found upon the earth's surface, including *botany*, *zoology*, *anthropology*.

(2) *Modes of Attention.*—These studies constitute the curriculum. "What, then," you ask, "about the three R's? There is in this list of subjects neither reading, nor writing, nor arithmetic."

The answer to this question is expressed in terms of psychology. The child is a spiritual organism that responds to external stimuli. These stimuli are the actions of things. The mental process immediately caused by the action of external objects is *attention*. This is defined by Colonel Parker as "that power of the will which holds the body and the mind in the most economical attitude for the most effective and complete action of external attributes thru nerve tracts upon consciousness." There are three modes of attention:

(*a*) Observing.
(*b*) Hearing—language.
(*c*) Reading.

(3) *Modes of Judgment.*—After attention, what? What shall the soul do with these impulses as they come in over sensory tracts? The next step manifestly is discrimination or comparison. Knowledge gained by the senses directly is very limited. By far the greater part of sense-knowledge is acquired by experience. Judgment enters into all perception. Thus, what we know of form thru the eye is based upon the muscular sense and is wholly a matter of judgment. So distance, shape, and size are chiefly interpretations of light and shade and touch sensations. After attention, then, judgment is the most important part of knowing.

But mere knowledge is not all that is involved in an act of knowing. Reflex action is a perfect type of mental activity. The reflex arc consists of (*a*) an afferent nerve, which carries impulses to (*b*) a central ganglion having the power of converting sensory impulses into motor impulses, and (*c*) an efferent nerve, which sends to the muscles impulses, and thus initiates movement or expression. The brain is but a higher ganglion. Sensations are carried in over sensory tracts. Judgment selects, compares, assorts them, and converts them into motor impulses. To the motor element of mental activity Parker gives the general name of *expression*. Expression is defined as the "manifestation of thought or emotion thru the body by means of physical agents."

In a word, mental action is briefly comprehended in these three—*attention*, *judgment*, *expression*. The process of education consists in providing the conditions for the economical exercise of these three forms of activity.

There are two kinds of judgment:

(*a*) Number (quantitative). *Example.*—Here are *six* roses.

(*b*) Form (qualitative).—*Example.*—The rose is *red.*

(4) *Modes of Expression.*—Colonel Parker recognizes nine modes of expression which are to be introduced in the order of the following arrangement:

(*a*) Gesture; (*b*) Voice; (*c*) Speech; (*d*) Music; (*e*) Making; (*g*) Modeling; (*h*) Painting; (*i*) Drawing; (*j*) Writing.

These are the modes spontaneously developed by the race and are necessary to the complete development of the child. Four of them—gesture, voice, speech, music—the child knows when he comes to school. The rule is that the more material is employed in a mode of expression the easier it is. Hence, making comes first, since it employs matter in three dimensions and many tools; modeling uses matter in three dimensions and one tool; painting employs two dimensions, few tools and color; drawing employs two dimensions and light and shade; while writing employs only the line, and is therefore most abstract.

3. HERBARTIAN THEORY OF CONCENTRATION.

The followers of Herbart select their culture material in accordance with their culture epoch theory. As a member of the State, the pupil is bound to a certain stage of civilization which his ancestors have transmitted to him. To get possession of this inheritance must be his first and foremost duty. This, it will be noticed, is also the point of view of Dr. Harris, but not at all of Colonel Parker. Those who think that the heritage of race-culture is the most important thing in education are humanists; those who think the study of nature the most important are realists or naturalists. Dr. Harris and the Herbartians take the humanistic standpoint, tho they do not at all agree in details; while Colonel Parker is, strictly, neither humanist nor naturalist. He puts no emphasis upon the objective content of knowledge. The only reason why he prefers nature study is because it is in the line of the child's spontaneous interest, and therefore the most effective instrument of development. Knowledge is not the end, but a means. The end is development, self-direction, self-control, freedom.

(1) *The Care.*—Assuming with the Herbartians that the mastery of the culture material of the race is the most important aim in education, it may be next inquired, What subjects best represent that material? The world's accumulation of knowledge is so vast that we can not possibly teach everything in the school. A selection must be made. We have seen that Dr. Harris finds five subjects co-ordinate in importance that represent all knowledge. Not so the Herbartians. They find that *history* and *literature* have the greatest moral content, or practical value, in bringing about the moral revelation of the world in the mind of the child. These two subjects they call "Gesinnungs-Stoff," that is, material that serves to cultivate right disposition. History and literature are therefore the center or core of the course of study, while the other subjects are made subordinate to these and correlated with them. This theory has been elaborated and applied in Germany by Ziller* and Rein† and explained by Lange‡ and DeGarmo*.

Having selected the core, the theory has next to show how the other branches are to be disposed or "concentrated" upon and around the center. The general reply is that they are to be presented not as isolated or independent subjects, but are to be articulated into one organic unity. We present below in outline the core as arranged by Ziller for the eight grades of a German school (*):

First year —Grimm's Fairy Tales.
Second " —Robinson Crusoe.
Third " —Bible Stories of Patriarch's and Legends of Thuringia.

---

*Herbart and the Herbartians. Charles De Garmo. Scribner's, 1896.

†Outlines of Pedagogics. Dr. Rein.

‡Apperception, Dr. Karl Lange Heath & Company, 1894.

Fourth Year —Bible Stories of Judges and the Kings of Niebelungen Tales.
Fifth " —Bible Stories of Christ and History of Henry I., Otto, and Charlemagne.
Sixth " —Bible Stories of Christ; Migration of the Nations; Roman Empire and the Popes; Crusades; Middle Ages; Rudolph Von Hapsburg.
Seventh " —Original Congregations of Churches and the Apostle Paul Discovery and Settlement of America; History of the Reformation; Thirty Years' War.
Eighth " —Instruction in the Catechism; Frederick the Great; The Napoleonic Wars for Independence; Restoration of the German Empire.

In each year all other subjects must grow out of the given core, which gives color and meaning and ethical character to the entire Course of Study. To illustrate how this difficult task is accomplished by the Herbartian concentrationist we give an abridged copy of a course of study for the first year, from the pen of Dr. Frank McMurray, of Columbia University.

First Grade.

1. *Literature.*—The Fir Tree—Andersen (Core).
2. *Science.*—(*a*) White pine as type of evergreens.
   (*b*) Austrian pine.
   (*c*) Scotch pine.
   (*d*) Norway pine.
   (*e*) Balsam Fir.
3. *Reading.*—"A Pine Twig" and "Story of a Pine Tree," in "Nature Studies for Young Readers."

   Also sentences on board taken from science and literature work.
4. *Writing.*—All the small letters. If children are ready to study *r*, take the words *fir*, *rabbit*, *green*, *tree*.

5. *Drawing.*—(*a*) Drawing of pines and firs with colored chalk.
    (*b*) Drawing (and sewing in perforated board of evergreen trees, cones, and rabbit.)
    (*c*) Modeling—trunk of tree, tub in which it was placed; toys that adorned it.
    (*d*) Drawing of different scenes in the story.

(In drawing, *a*, *b*, and *c* are from science; *d* is from literature.)

6. *Number.*—Number of needles in a bundle of white, Scotch, or Austrian pine; in two bundles of white pine; in two, four, or five of Scotch or Austrian pine. Number of wings on two, or three seeds. Number of pairs of legs on rabbit. Number of wheels on wagon that hauled the tree away.
7. *Music.*—"High in the Top of an Old Pine Tree."
8. *Poems.*—"Pine Needles."
    "The Little Fir Trees."
    "The Pine Tree's Secret."

This is only one of an infinite number of possible ways in which concentration might be effected in accordance with these principles. The subject or theme of the Core may be anything, so long as it is history or literature. In McMurry's first year it happens to be the pine tree; in the second it is the story of Louise in "Seven Little Sisters"; in the third year it is "Robinson Crusoe"; in the fourth, "Fremont's Expedition"; in the fifth, "John Smith"; in the sixth, "Causes of the French and Indian War."

4. De Garmo's Theory of Co-ordination.

Dr. Charles DeGarmo* of Cornell University, the leading Herbartian in the United States, is not satisfied with Ziller's method of concentration, nor yet with Colonel Parker's. In fact, he has come to the conclusion that concentration in any

---

Herbart and the Herbartians. P. 240

form is objectionable, because it makes one subject all-important, and reduces others of equal importance to a subordinate position. Co-ordination, on the other hand, allows each important subject, or group of subjects, to follow its own principle of development. Concentration always puts the emphasis upon the core-study, making the others incidental, and we know that incidentals are liable to be regarded by the teacher as unimportant; and this leads inevitably to their neglect. In co-ordination each branch is studied separately, and none is left to the hazard of incidental treatment. A further objection to Ziller's concentration is the fact that the historical development or culture epoch method of adaption, applies only to the humanistic group of studies, and must be abandoned when science, which in recent years is at least equal in importance to humanistic studies, is taken up.

A still further objection to the preceding theories of concentration is the neglect, in each and all, of the economic aspect of life. All philosophies of education subscribe in one way or another to Spencer's creed that the end of education is complete living. But this is achieved only partially by the humanities and science, inasmuch as these make no direct reference to the child's industrial environment. When all is said, breadwinning remains the most important occupation to the average pupil after school days are over. Therefore no education can be complete or satisfactory which fails to make provision in some direct way for this important function. For this reason DeGarmo would have another core in the curriculum—the *economic*—equal in importance to the humanities and sciences. Such a course of study would then have for its culture material:

(1) *The humanistic group*, "having a distinct ethical content in literature and history, and a historical development as seen in the culture epochs thru which civilization has passed."

(2) *The scientific group*, "having no specific ethical content and no long progression from primitive to higher truths, since for the most part these studies have all been developed during the present century."

(3) *The economic group,* "representng the two factors, man and nature, in interaction." This is "at ance a principle of application for all studies, and a specific department, as seen in such subjects as manual training, industrial art, mechanical drawing, commercial geography, and the like."*

Each of these groups is subdivided by DeGarmo into *content* and *form.* Thus, in its humanistic group, the content is represented by history and literature, while the form will consist of language-study, such as grammar, spelling, composition, etc. In the scientific group the content is the study of nature, and mathematics is the formal aspect of the subject. In the economic group the content is found in economic and social literature, commercial geography, etc., while the formal aspect of the subject consists of manual and industrial training.

5. PROF. DEWEY'S THEORY OF SOCIAL CORRELATION.

Dr. John Dewey† has a theory of education which is in effect, if not in name, a method of unifying or correlating educational processes by means of typical social occupations. The starting-point of the theory is the proposition that the school *is life,* not merely a preparation for life. In other words, the work of the school is or ought to be as reasonable and vital to the child as the occupations of grown-up people are to them. The maxim "learn to know by doing" is amended so as to read, "learn by living." The ideal home is the pattern or model of the work and discipline of the school. Whereas Colonel. Parker starts with the natural (outdoor) environment of the child and evolves the curriculum of the school from it, Professor Dewey conceives the environment as social. The child converses with his elders, asks questions, states his experiences, has his misconceptions corrected, takes part in household occupations, and gets habits of industry, order, and regard for the rights of others. If we organize and generalize all this we have a school. He criticises the school of the present because it is planned chiefly for listening; the pupil is relatively in a passive or receptive attitude. But a child is normally active, impulsive. "The moment children act they individualize themselves; they cease to be a mass."

---

*Herbart and the Herbartians, p. 243.

†The School and Society. John Dewey. University of Chicago Press. 1899.

Therefore the "articulating centers of school life" are to be occupations (active) rather than studies (passive). "We must conceive of work in wood and metal, of weaving, sewing, and cooking, as methods of life, not as distinct studies." The occupations are to be typical, including those by which man supplies himself with food, clothing, and shelter. Out of occupations grows the entire curriculum of the school. The study of materials leads to chemistry, physics, geology, etc. The history of occupations reveals the gradual social evolution of the race from simple primitive methods, thru invention, to the modern complicated and highly specialized processes. This is the rational basis and natural starting-point of the study of *history*. *Geography* is a study of the earth as the enduring home of the occupations of man. Number work, reading, and writing are in a similar way to be related to occupations. The aim of it all is not the economic product of the occupations, but the development of social power and insight.

Professor Dewey finds in children four instincts which constitute the rationale of his system. These are:

(1) The social instinct as shown in conversation (language).
(2) The instinct of making (constructive impulse).
(3) The instinct of investigation (grows out of combination of 1 and 2).
(4) The expressive impulse (grows out of 1 and 2).

The Elementary School of the University of Chicago, where the experiment of testing these theories was for some years in progress, endeavored to answer these four questions:

(1) How to give the child the same interest in going to school, and in there doing things worth doing for their own sake, that he finds in his spontaneous plays and occupations.

(2) How to introduce history and science and art that they shall have real significance and positive value in the child's own life.

(3) How to give instruction in the three R's, with everyday experience and occupation as a background, in such a way that the child will feel their necessity thru their connection with subjects which appeal to him on their own account.

(4) Individual attention—eight or ten in a class.

The solution of these four problems has resulted in the system of learning by living, or the correlation of school work by means of typical occupations which reveal the evolution of human society and thus develop social insight and power.

Joseph S. Taylor, Pd.D.

District Superintendent, New York City.

Topics for Discussion

Teachers as a class are more in need of encouragement than workers in almost any other sphere of labor.

The happy heart of the teacher of little children is an important educational factor which nothing else can supply.

The community that honors its teachers perceptibly adds considerably to its educational assets.

Obituary encomiums are but a poor surrogate for the word of cheer to the living.

It is well with the people that honors its educators.

Co-education beyond the elementary schools entails more loss than gain to the individual pupils. As the importance of training for motherhood is becoming more recognized by a progressive civilization, the question will be seen in a clearer light than has been the case in the past.

Folklore in "The Culprit Fay"

WHEN the volume entitled "Readings in Folklore" was issued, more than a dozen years ago, the criticism was made in some quarters that the significant word of its title was "over-worked," since is was made to include such a composition as "The Culprit Fay." Drake's poem, it was held, is not folklore, but pure fiction; it is not ancient, but modern; and the scenes depicted in it offered to the poet not a trace of legendary significance. At that time "The Culprit Fay" was but a name to the great body of American students, and not even a name to the general public. It was not issued in popular editions. It was not edited.

The study of literature then meant, in our high school work, not the study of authors, but the study of books *about* authors. The "Report of the Committee of Ten" effected a sudden and sweeping change. Classic authors came to be studied and popularized as never before. Beginning with such "stock" classics as Shakespeare (three or four plays), Scott (poems), and Irving, the list has been gradually extended, and the use of classics, in the form of "literary wholes," has become popular even in grades below the high school. "The Cuprit Fay" is now among the elect compositions, being frequently used in the grammar grades, and is available in various convenient forms. It answers a triple purpose, since it responds alike to the demand for "nature study" and for myth lore, while supplying a delightful study in early American literature.

The design of the "Readings in Folklore" was simply to carry the study of mythology beyond the conventional Grecian and Roman limits, and to open new fields of culture study as an aid to the student of modern literature.

It needs no argument that some knowledge of traditional fairy lore is needful to a comprehension of "The Culprit Fay." The narrative of the poem is, of course, a piece of original fiction; but the materials which Drake used in its composition are very, very old. The fays, or fairies, the elves, sprites, and ouphes, are to us creations of pure fancy. But we should remember that they were realities to our ancestors of the long ago.

The austere moralists of the Puritan régime knew no middle ground between truth and falsehood. Whatever was not true was, to them, a lie. But many of the mythic tales which are our heritage from a remote past are neither, they did not originate as fictions—as conscious inventions—but as sincere attempts to explain natural phenomena in unscientific ages. They present to us sacred pictures of humanity's childhood.

The fairies, elves, etc., of our Keltic ancestors in the British Isles are in strong contrast with the centaurs, mermaids, harpies, etc., of the Greeks. Those who believed in the latter did not claim to have seen or heard them, or to have been near them. These monsters always were to be found in some other place, some other part of the world. The fairies and their ilk left the traces of their presence about the home from day to day, or, rather, from night to night, they were close by, in place and in time.

Again, the monsters of the Grecian mythology did not generally differ very greatly from human beings or from the larger animals in size. The fairies of the British Isles were very minute, they hid behind a rose, or disappeared in the short grass. At the same time, it should be noted that ancient British folklore deals with giants eighteen feet in height. The Keltic fancy went to extremes. The Keltic mythland united Lilliput with Brobdingnag. Swift had the suggestions for both of these famous scenes of "Gulliver's Travels" in the ancient legendary lore of his own land.

Nothing could have been more sincere than the ancient belief of the people in both giants and fairies. But there was this difference between these myths: the giants were believed to have disappeared from the earth long centuries agone, while the fairies were accepted as living contemporaries. The ancient belief in giants of a still earlier period is easily accounted for. The bones of the mammoth and the mastodon, abundant in Britain, were mistaken for human relics. The hind legs of these animals (unlike those of any quadruped that Britons had ever seen) had knees, like the knees of a man. When the bones of these limbs were measured, with the pelvis, the hip joint was found to have been about nine feet above the ground. Supposing these to be human or giant relics, they indicated a creature of the height ascribed to the giants slain by the followers of Brut in the British-Trojan kingdom of old legend.

But the fairies! Upon what phenomena was their existences predicted?

If they were not seen, they were distinctly heard, and from a short distance—as the people believed. When the watchman upon the tower blew his horn and looked about him, he could conscientiously report that the castle was surrounded by elves. He heard their mocking horns in reply, and their notes were thinner and clearer than his own. Why could he not see them? Because they were evidently hidden in the grass. Surely they must be very small. The neighboring cliffs and the blueish glens were full of these audacious sprites. It has been remarked as a chief merit of Tennyson's "Bugle Song" that that fascinating poem recognizes this old evidence of the existence of elves.

> O hark! O hear! How thin and clear,
> And thinner, clearer, farther going,
> O sweet and far, o'er cliff and scar,
> The horns of Elfland faintly blowing!
> Blow, let us hear the purple glens replying,
> And answer, echoes, answer, dying, dying, dying.

But the echo was not the only manifestation of elves, or fairies. The morning brought evidences of their activity in the night. Who painted the frostwork in fantastic pictures and Arabesque designs? Who broke the pitcher in which water had frozen? In the sweet summer time, who dropped little flint arrow heads upon the plowed ground? It could not have been the innocent kittie that upset the jar of milk! Who could conceive that it was a prankish bluejay that picked up the baby's hood from the lawn and hung it upon the limb of a tree, out of reach—that picked up the farmer's harness buckle or ring from the bench, and hid it in a box in the barn? Who stopped up the chimney and made the fire smoke? Who or what caused circles of brighter green to appear here and there in the meadows? Was it not the fairies, who held their nightly revels there? What did it matter if they all vanished at daybreak and hid thru the hours of sunlight?

The superstitious always find abundant reason for their superstition. A thousand and one little unexplained occurrences about the home were attributed to the work of fairies, when perhaps a little careful explanation might have brought the causes to light.

One of the most remarkable acts attributed to the fairies was the exchanging of children. When a beautiful babe, that had passed sweetly into slumber, awakened cross-eyed or delirious, screaming with some disorder, it was assumed that it was a "changeling"; that a fairy had taken the healthy and happy child away and substituted for it an *oaf* (compare ouphe). It will be observed, in the first place, that a being capable of carrying away in its arms a big baby, or even a larger child, could not be the tiny creature which we have generally in mind when we speak of fairies; and, further, that an act so cruel does not comport at all with the light-hearted, innocent, mirthful character of the tiny revelers of the night.

The fact is, that these imaginary beings possessed natures as varying as their size and form. Different peoples had different conceptions of them, and gave them different names. In the British Isles, where the currents of various nationalities met, the characters and names became inextricably confounded. Lexicographers do not generally attempt now to differentiate them. (Writers use indifferently the names derived from various language stocks—*fairy* or *fay*, *elf*, *sprite*, *ouphe*, etc. tho they generally reserve the words *goblin* and *brownie* for the more comical beings.)

Into this vortex of fairy lore have been drawn names and characters wholly incongruous. Ums Queen Meave, the heroine of an ancient Irish saga, supposedly a queen like other queens, became transformed in name to "Queen Mab," and diminished in person to the tiniest of the fairies. It is thus that Mercutio describes her in scene IV. of the second act of Shakespeare's "Romeo and Juliet":

> She comes
> In shape no bigger than an agate-stone
> On the fore-finger of an alderman,
> Drawn with a team of little atomies
> Athwart men's noses as they lie asleep.

Such was the folklore of the Old World which Drake, in the year 1816, transplanted to the shores of the Hudson. He gave the fairy story a new scope and a new meaning. His tiny hero is given tasks to perform—tasks as heroic for him as were the "labors" for Hercules. The "Culprit Fay" is presented in trials of strenuous endeavor; and it is only when his tasks are accomplished, and his triumphs are won, that the wonted mirth of the fairies is manifested in their tricky frolics. Shakespeare associates the fairies with little creatures of the animal world, and with the smaller products of plant life. In the scene cited above, the equipage of Queen Mab is thus described:

> Her waggon spokes made of long spinner's legs,
> The cover of the wings of grasshoppers,
> The traces of the smallest spider's web,
> The collars of the moonshine's watery beams,
> Her whip of cricket-bone, the lash of film,
> Her waggoner a small, grey-coated gnat,
> Not half so big as a round little worm
> Pricked from the lazy finger of a maid.

In Shakespeare's "Midsummer Night's Dream" (Act ii, Scene I), a limit of the size of the fairy who speaks is given in the line

> The cowslips tall her pensioners be.

It must be a minute being to whom the cowslip appears "tall."

In Drake's poem the fairies are not so minute as to lessen the interest, which is almost human in its nature. One fairy wears an acorn cup for a helmet, and uses a mushroom for a table. Acting upon the hint contained in Shakespeare's description of Queen Mab, Drake uses a great variety of delicate and tiny objects of forest growth which picture life in its simpler forms. "The Culprit Fay" is thruout a poem of nature, as well as of fairy lore. To such an extent did Drake develop this association of fairies with natural objects of delicacy and beauty, that he may be said to have changed very materially the ideals of fairy life—to have given it a character essentially new, if not entirely original.

Another distinctive feature of Drake's poem is its use of quaint expressions, peculiarly appropriate to a subject so far removed from real life. The hero fashions an oar from a "bootle blade," to guide his purple mussel-shell boat down its dangerous course, and he bails out the vessel with a "colen bell," which he has "plucked." Doubtless the "bell" is the cup of a flower—but of *what* flower? It is not easy to say what sort of growth was the "bootle blade." These terms seem to have defied the lexicographers, who have generally assumed that the strange words are mere inventions to stimulate the fancy of the reader, like the "runcible spoon" of Mrs. Diaz. Viewed internally, it may be said that "The Culprit Fay" is the folklore of fairies transplanted from the Old World to America, but that this has received at the hands of the author a character, or at least a development, largely new.

Of the historical place of the poem, it is beyond the purpose of this paper to speak at length. Yet this is one of importance not likely to be overestimated. With Moore's "Paradise and the Peri" (which likewise treats of non-human characters, ideal powers, and strange and doubtful tasks of penance), and with Scott's poems, which belong to the same point of time, it marks a very great change in both style and subject from the poetry of the age preceding. It marks a turning-point in the course of literature. A further consideration—if any were needed—to inspire popular interest and national pride in the poem, is found in the singular circumstances under which it was composed, and the pathetically early age at which the poet was called away from earth at the very opening of his career. It is gratifying to note that the composition, so long deemed a treasure of merely local interest and moderate merit, is becoming the possession of the entire nation, and is estimated at a truer value than heretofore.

Chicago. HUBERT M. SKINNER,

Author of "Readings in Folklore," "The Story of the Britons," etc.

Topics for Discussion

He who can discern beauty will not be bent upon destruction, but rather upon the cultivation of everything that promises new beauties.

Education is man's interpretation of God's will towards mankind.

Do you know how to tell a good school? a good school system? By the spirit of it—the amount of heart there is at the center.

Co-education appears to be chiefly a temperamental question. It is a good thing for some people and bad for the others. According as one sees the good or the harm, one either advocates or opposes it. Furthermore, it is a financial question. Co-education is less expensive than the other kind of education, and so there are more advocates raised up in its favor.

In the past education has been too largely regarded as the bringing up of self-sufficient individuals—"harmonious development of powers," character formation, etc. Now the industrial and social relationships are to receive more adequate attention.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

ARITHMETIC.

1. Multiply thirty-two and one hundred ten ten-millionths by three and seven-sixteenths and divide the product by one hundred thousand.

2. Arrange in order of magnitude $\frac{11}{18}$, $\frac{17}{23}$, and $\frac{8}{11}$. [Leave all your work on your paper.]

3. At 20 cents a square foot, what will it cost to construct a tin cheese vat 14 feet long, 4 feet wide, and 2½ feet deep?

4. If the vat described in question three is filled with milk, what is the value, at 12 cents a pound, of the cheese that can be made from it, if a gallon of milk weighs 8½ pounds and it takes 10.23 pounds of milk for one pound of cheese?

5. After a stock of goods was damaged by fire 30 per cent. of it was sold at a discount of 60 per cent. from its cost; the remainder of the stock was sold at a profit of 20 per cent. If the cost of the stock was $7,500 what was the gain or loss per cent.?

6. A house that cost $5,000 is assessed at $2,800 and the tax rate is 2 per cent.; it is insured for three-fourths of its cost at a rate of ¾ of 1 per cent. What must be the monthly rental to pay 6 per cent. on the investment?

7. If a stick 32 inches high casts a shadow 28 inches in length, what is the height of a steeple that casts a shadow 96 feet in length?

8. Find the date of maturity, the term of discount, the bank discount, and the proceeds of a 60 day note, without interest, for $1,200, dated October 14 and discounted November 6.

9. If it costs $40 to carpet a rectangular room 20 feet long, how much will it cost to carpet a room of similar shape 25 feet long?

10. The gable of a house is 50 feet wide and 14 feet high; what is the length of the rafters? [Make no allowance for projection over the side of the house.]

ANSWERS.

1. .001100000378⅛.
2. $\frac{11}{18}$, $\frac{8}{11}$, $\frac{17}{23}$.
3. $29.20.
4. $104.42.
5. $300 loss.
6. $32.01.
7. 109$\frac{5}{7}$ feet.
8. December 13; 37 days; $7.40; $1,192.60.
9. $62.50.
10. 28.65 feet.

Physical Nature Study Books

By JOHN F. WOODHULL, Ph.D.,
Professor of Physical Science, Teachers College,
Columbia University, New York City

Home-Made Apparatus

Simple Experiments in Chemistry

Simple Experiments in Physics:
Properties of Matter; Mechanics;
Fluids; Heat

Simple Experiments in Physics:
Magnetism; Electricity; Light; Sound

AIR.—What it is and what it does; its importance to our health and comfort, especially with reference to the conditions in great cities. WATER.—The system of supply in cities; suitable drinking water in rural districts; water power; the uses of rain, etc. HEAT.—Methods of heating buildings, applications to cooking and manufacturing processes, generation of power. ELECTRICITY in the household; electric bells equipment; electric lighting; electric heating and cooking; telephone; electric motor; dynamo; electric cars. LIGHT and optical instruments. SOUND and musical instruments. COMBUSTION and chemistry of the household and of daily life.

4 Volumes. 12mo. Cloth. 65 cents each.

A. S. BARNES & COMPANY
New York

Hints and Helps From Many School Rooms

Arranged by C. S. GRIFFIN
Editor of OUR TIMES

Only such devices have been selected as have been tried and found successful in the actual work of the schoolroom. These include the subjects of School Management, Reading, Spelling, Writing, Arithmetic, Geography, Language, Music, Drawing, Busy Work, and Current Events besides a large number of general suggestions covering all manner of subjects connected with school life.

It is a veritable teacher's cyclopedia of tested ideas and suggestions for lightening the burden of schoolroom work, keeping up pupils' interest, and making school what it ought to be, the happiest, busiest, most enjoyable and inspiring place the pupil knows of.

12mo. Cloth. $1.00.

A. S. BARNES & COMPANY
New York

Educational Foundations

APRIL
1907

Stanford
25

VOL. XVIII
NO. 8

DEPARTMENT OF
EDUCATION.
RECEIVED
MAR 28 1907
LELAND STANFOR
JUNIOR UNIVERSITY

$1.25 a Year, 15 Cents

UBLISHED MONTHLY BY A. S. BARNES & COMPANY

LIZABETH, N. J. [illegible] NEW YORK CITY

[illegible]

THE COURSE OF STUDY

English Language Instruction. C. B. Gilbert

Observational Work for Children. Fran. Carne

Correlation: Co-ordination. Centralizatio
Joseph S. Taylor

PEDAGOGICAL DISCUSSION

The First Two Years in School

The Autobiography of a Teacher. C. Hanfo
Henderson

Herbart on the Aim of Education. Ossian Lan

EDUCATIONAL CLASSICS

Respect Individuality

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS

Educational Foundations
OSSIAN H. LANG, Editor
Vol. XVIII APRIL, 1907 No. 8

Order of Development and Studies Suited to Each Stage*

OF course, if everything in the world is well enough, then why not build a lodge in the wilderness, and be happy? But if all is not well, why not take a little innocent recreation in the way of reform, beginning with that profitable surgical carpentery of plucking the beam out of one's own eye?

For several years past, in the occasional quarter hours that I have been able to devote to thought and work in education as such, I have been trying to resolve certain difficulties in the relations of the educational world to the society that environs and supports it. I have been asked and am asked, these questions:

1. Why does not formal education always educate?
2. Why do children leave school, or why are they taken from school before they are educated?
3. Why do so many men and women criticise, distrust, censure, or reject education as it is, for not being genuinely what it purports to be?
4. Why are educators given so much responsibility and so little authority?
5. Why is it so difficult, why is it impossible to get sufficient money for formal education?

We are upon the horns of a dilemma; either American democracy must look elsewhere than to education for relief from the ills that afflict us as a society and as individuals, which apparently amounts to abandoning education, or else educators must provide a new kind of education.

In what respects can education be changed sufficiently for the better so that it may meet fairly well the needs of the age? In various quarters, various remedies are proposed: among these remedies are more men as teachers, more evening and summer schools, a longer period of compulsory attendance, all requiring more money—which is the very thing denied by a sceptical public. The case seems to require not so much exhortation as introspection. Of course, in certain regions of the nation, where they are still voting, county by county, whether or not to have public schools, exhortation is in order; but in most regions the communities have tested private, endowed, and public education and are paying now substantially all that they think it is worth.

---

*Address to the Department of Superintendence, N. E. A., at Chicago, February 28, 1907.

Education takes the average boy for about one hundred and fifty days in the year for about five hours in the day. Education and society both know that the graduate is not really educated: but society says in its practice—"I have examined your boy who stays about ten years in education, and I really don't care in most cases to pay the price for the difference in quality." Wherefore, education, shut in to itself, begins to inquire how it can change its own character. Obviously, it can effect changes either in its mechanism or in its spirit; and obviously, it prefers the mechanical changes. But when these mechanical changes are tried here and there, the results are disappointing.

A logic that appears to surround us without loophole of escape appears to compel us to examine the thing itself that we profess, which is education. At once we discover that education is essentially a matter of the exercises to which soul and body are subjected.

THE CULTURE EPOCH THEORY.

A few years ago, there was a theory that attracted much attention and secured some consideration in our courses of study as pursued in different communities, to the effect that each individual repeats in his own life-history the life history of the race. It is entirely unnecessary for me to review in this presence, the arguments, the experiments, the criticisms, the books, the essays, the methods and devices involved in this famous recapitulation theory. You all know what it is and that it has failed as yet to convince either the American public or this profession. The trouble with this theory is rather its insufficiency than any erroneousness. It is insufficient in that hitherto all nations have suffered and failed because of arrest of development. We are not content that our youth shall repeat in this respect the racial history; we desire them to repeat the history of the greatest of the earth, of those who have ascended far above, who have developed far beyond, their ancestral nations. This theory leaves education a truncated pyramid—we need an apex. But the theory, tho mainly is not wholly true. As a matter of fact, we individuals tend to repeat the life history of our own particular ancestors—not up to the times of their demises, but up to that partial maturity when they became our parents. In other words, we tend to repeat the life-history of the youth of our ancestors. In the word "tend" I have tried to suggest a second error in this recapitulation theory. We do not actually repeat every phase of the histories of the bodies and souls of our youthful ancestors because we shortstep and even skip most of them for the adequate reason that these histories are distinctly contradictory in their details. Clearly, this theory looks backward; has no light upon the problem how to produce leaders; and is valuable rather for correction than for direction, to limit and to prevent excesses rather than to inspire and to guide education.

PREPARATION FOR SOCIETY.

A second theory has a certain relation to the first, supplements it, to an extent enlarges, and to a degree improves it. By this theory, the individual is to be prepared for human society as it now is; and education is defined as deliberate preparation for life by intelligent participation in such modes of life as are comprehensible by the individual learner. By carefully determined studies and exercises, the youth is to be converted into a useful member of society; and this fact that he can be used by society to effect its ends is considered satisfactory evidence that he is educated. This sociological philosophy has not yet achieved the vogue of the historical philosophy; but it has been urged, and it is being urged by forces of the greatest significance in American life. It has university standing, not less than that of the historical philosophy; and it has business backing which the historical philosophy could never secure. It appeals to common sense, for it is subtly utilitarian, if not essentially materialistic. When modified by the provision that the school must never attempt to educate contrary to the nature of the individual, must not try to make a merchant out of a poet, or a politician out of a scientist, or an engineer out of a philosopher, or a farmer out of a lover of the crowded city, then this sociological theory commands considerable attention; that is, attention until one sees that the two provisos destroy the theory root and branch—for the first proviso asserts that the individual, not society, is the determining factor, and the second admits that the boy cannot be made really to understand adult life and its institutions. All the effect of the theory is, therefore, to bring upon the horizon the fact that the truly educated man serves humanity. This by no means forces us to the extreme view, that the end of education is solely to produce heroes and leaders and sages; that is, great men. But it does compel us to see that the sociological theory in its purity is but a generalized philosophical affirmation of the commonly condemned attitude of the father who proposes to fit his son for business or of the mother who prays that he may become a minister. There is, moreover, another fatal error in the sociological theory; an error familiar enough to all psychologists. Fit a boy for the dramatic profession in his youth, satiate him with opportunities of expression; and he often, often will never enter a theater, for he has exhausted his interest in the dramatic. Facts function to inhibit as well as to generate interests. Human nature craves the rounded, complete life as well as inclines to follow the familiar lines of least resistance—in this contradiction, life consists.

THE EVOLUTIONARY THEORY.

The schools of America in their average actual practice incorporate an interesting philosophy. Our courses of study are the product of a kind of natural evolution, not quite so natural as it seems, but of that accidental, haphazard character typical of unconscious evolution. This philosophy is opportunism. In accordance with it, boards of education and superintendents of schools take what courses of study they find and add to them, tinker them—where the boards are in control, these additions and tinkerings result in courses thoroly worthy the study of educators. Whether they deserve study by the pupils is a different question. They achieve two results: they recapitulate the educational courses of the parents of the pupils, and they try to prepare for real life. Occasionally, where in certain communities there has been for two or three decades a competent superintendent, or a series of competent superintendents with boards indifferent to educational matters or shut out from them by law or regulation, these opportunist courses of study show no little unity of purpose. When these actual courses are placed side by side, and when they are examined in actual operation and compared, we discover two facts: one, that opportunism is mere natural evolution altogether out of harmony with that purposive conscious evolution expressed, *e. g.*, in the constitutions of Nation and States and in all the higher phases of American culture. Educational opportunism does not seem to comport with the dignity of a profession in such a civilization as ours. A second fact is that it results in unwarranted difference as in practice. If opportunism expresses a genuine philosophy, a body of general truths, then in like communities it would be incorporated in like courses of study. To this, it may be objected that from one end of the country to the other, we have history, geography, spelling, biology, Latin, in practically the same schools and grades uniformly and universally. This is true, tho only in appearance, for history by one method is a different thing from history by another method; but my point is that the additions and the tinkerings are surprisingly unlike in like communities—that tradition is the keynote of opportunism, and that the variations are due to individual caprices, usually of laymen, are the two facts that I desire to emphasize.

A PSYCHOLOGICAL BASIS.

Psychologists will perceive that these three theories, the historical, the sociological, and the opportunist or natural evolutionist theories, are all primarily, if not wholly, objective; they depend for their proof upon external facts. And psychologists, who are now inquiring why the mind has a body, logically inquire also why education does not go to psychology for a philosophy of a course of study.

This is the duty of educators: to challenge psychology and psychologists to perform this public duty, to show educators how the mind grows and what it needs to grow, when its changes take place, and what an educated soul is. It is possible that psychology now has rather more to offer in the way of truths applicable to education than psychologists themselves care to assert. Pure science seldom cares to play any part as an applied science; it is a kind of filial ingratitude to a parent.

PROGRESS OF THE CHILD.

It seems to be pretty well agreed by genetic psychologists that the child of five is all curiosity. His motive is to see things. By fits and starts, he tries to do things. His intelligence is far beyond the power of the adult mind to recall or to imagine. He lives thru more experiences each day than I do in a month. They are, of necessity, therefore, superficial experiences, sense impressions, quick and light reactions. Of morals, he understands nothing; he has no need of social consciousness and of personal consciousness. Any drill is an offense. Any stimulus is an offense. Any demand upon his attention, any command relating to his conduct, beyond the requirements of sheer necessity, is an offense. All that he requires is opportunity to see things, to play, talk, and to do things that seem to him worth while. He requires care, not setting in order. When the teacher of the seven-year-old child understands that morals do not concern him, save the merely prescriptive morality of obedience to parents and to teachers, and that efficiency is but a star upon the horizon, but that the business of the day is to cultivate and to gratify the searching activity of the soul of the little one—that intelligence is the ideal—how many economies can be effected? and how clear is the day's duty? Nature story-telling, learning to read, individual play, singing, happiness, forth-putting of the mind, finding how to do things and dropping the task upon the first weariness, these fill the mind of the teacher as well as of the children.

At nine years of age, the child is merely all industry. There has been a marked subsidence of curiosity with its dissipation of attention. Moral ideas have begun to glimmer in him. He desires knowledge that he may use it. He is not so much self-conscious as self-centered. He is willing to drill himself in games with others; but he has not yet the true or the whole social spirit. His motive in life seems to be to get things for himself, especially to get things done by himself for himself. In this selfishness there is no malice; he is simply unmoral. Drill, so far from being an offense, has become a need and a pleasure. But no mode of stimulation from outside can be endured. Nor should any demands or commands be directed toward him beyond those of sheer necessity. All that he requires is opportunity to do things and proper direction in doing them. He must play, but his play now needs to be checked, as does his reading, lest he exhaust himself with over-fatigue.

When the teacher of the eleven-year-old child understands that morality is still far off, and that knowledge of itself counts for nothing, but that efficiency is attainable now or never, and that the best days for the development of quickness and retentiveness of observation have already gone by, how clear becomes the day's duty? To put thru one's undertakings, to play games skilfully, to know what one knows certainly, to write, and to draw, and to sing, and to use tools accurately, to do whatever one does well, to persevere, to remember perfectly, to read exactly what was written, and to express the thought and feeling in what was written; for the sake of the boy these fill the mind of the teacher—not so many pages of the readers or so many paragraphs of the geographies.

At thirteen years of age, there is considerable idealism, derived, of course, from the fruits of the curiosity and industry of the earlier years. The self-centering has become self-consciousness; in the conscience of this boy, there is a deal of genuine morality. Honor, truth-telling, loyalty, diligence, decency, are fairly well grown, but sympathy, self-denial, and graciousness are only in the bud. Drill is not yet resented; but the period for it has passed the climax. The boy has made no little progress in his games toward action in association with others.

More vital still will be the change in the attitude of the first year high school teacher, and more complete still will be the change in the atmosphere of his room, when he comprehends that the fifteen-year-old boy does not come to school to learn Latin or algebra or physical geography or mechanical drawing. God did not create the boy from the foundations of the world in order that this knowledge might find preservation in him as a repository. Not at all. The boy lives that he may grow and manifest in the universe certain powers and qualities; at fifteen years of age he is facing human society, to absorb this into his soul, to learn how to pursue his own course in the flood of life. The studies will pass; so will the boy; so will the race. They are to learn what courage and fortitude and honor and truthfulness and self-sacrifice are. I judge this because I see these qualities rising in the noblest humanity in all lands and ages, and here and now in the season of adolescence.

At seventeen years of age, idealism is almost at its climax.

The youth has begun to have a sense of values or principles; this sense is still more obscure, indefinite, and unreliable therefore, in its findings; but intellection or reason has reached the point of activity. Habits are fairly well fixed, and the day of drill is past. Morality is not established in respect to details; but the spirit of morality, which is wisdom, is alive and strong. Efficiency toward intended ends is at its heights as a power but, of course, not yet in respect to the results. To both demands and commands the youth is keenly sensitive and fairly responsive. I speak of the normal boy, normally educated, and not of the boy who is going to wreck in sin or in crime.

TRIUNE PSYCHICAL NATURE.

Man is dual, as every one knows; a creature of body and soul. For the body, he has but one authoritative ideal—health; for the soul, he has three ideals. It would be easy to show the source of man's conception of his psychical nature as triune. Without volition, affection, and intellection, all three, there would be no freedom for the soul, for freedom springs from oppositions and reconciliations. Were the soul to function in but one mode, there would be absolute tyranny like the cohesion of a solid; were it to function in but two modes, there would be ceaseless warfare like the conflict within gas; but the soul has the ordered liberty of the fluid. These three modes in which the soul functions suggest three ideals: intelligence, efficiency, and morality. These three terms, however, are not of the same powers, but form a scale. Intelligence may be characterized as the activity of the soul—its curiosity, stimulated or excited by motives set in action by facts pressing upon it from the world without. Here body unites or correlates with soul, for without health, motives cannot well up in the soul. Life is primarily a process of originating motive force; it is, of course, primarily physical, and becomes psychical only when motives stir. Motives are always unconscious; they ally themselves with interests which are the effects of the functioning facts. Motives are primitive willings capable of development into conscious purposes, but dying themselves in the process as the seeds die. What we mean by intelligence in this phase is simply the soul quickened by motives to inquire what the world is. Efficiency may be characterized as intelligence obedient to ideals. It is the resultant of motives resolutely at work finding facts of life and exciting the soul to interpret them. Efficiency is the result of purposes that have reduced body and soul, both, to their own ends. There can be no efficiency until there is much critical intelligence. Morality may be characterized as efficiency that works in harmony with values or principles as established in the fully conscious soul. Such a soul knows both itself and the environing world, not completely, but certainly. Life proposes these three aims: to originate motives, to acquire ideals, and to enforce values, or—to use other words—to apply principles. When an individual has attained these ends, he is intelligent, efficient, and moral. It is possible to attain these ends in middle adolescence, but not before. Then, and not before, it is reasonably safe to allow the educated boy or girl to encounter the realities of the world.

. . . .

For the man of motives and of ideals, there is always hope; his soul has vitality and elevation. But the mind of man has other business than aspiring and desiring; it has the final business of measuring, of evaluating, of appreciating. Strong motives and rich affections are essential; but they are not enough. There must also be fine and sane values. The place of intellection is indeed last and least; but it is undeniable, and absolutely necessary to common sense. On this battle-field of values, the *nouveau riche* perishes, for it is a field of pit-falls, sunken roads, false messages, artillery fire, and cavalry charges, of laziness, treachery, and reckless daring. Some Marengo tells the motive, some Austerlitz the ideal, some Waterloo the sense of values in each new Napoleon.

And yet this is the order of development, it seems to me, of every human soul. And it seems to me that we shall never know, what studies and exercises to put in, or to keep out, to put out or to keep out on the educational curriculum until we are willing to ask of each study and exercise these

THREE QUESTIONS.

1. What motive in the soul does this arouse?
2. What ideal does this furnish?
3. What value does this establish?

But these three questions do not apply equally at each stage in the development of the boy and man; and for two reasons, one philosophical and the other scientific.

To expect or to desire a full and proper appreciation of the things, conditions, and relations of life before one is really alive and at work for ends, is as dangerous to the welfare of the individual and of society as it is false to the known facts. The criminal is simply the man who is intelligent and efficient without being wholly moral. The more his education in intelligence and in efficiency is disproportioned to his education in morality, the worse for himself and for the world. Fully to accept this proposition, it is, of course, requisite to define intelligence as the mere activity or curiosity or motivation of the soul concerning the outer world—to define efficiency as successfully worked out motivation, and morality as motivation successful in relation to social values. The expert criminal fails to become a whole man because he works in affairs that are not worth while to himself and also offends the conscience of his fellows; in other words, he misjudges, fails to appreciate wisely, is deficient in the higher modes of intellection. The philosophical reason, then, why we do not ask with equal emphasis all three questions at each stage in conscious evolution, is that efficiency succeeds, follows, and flows from soul-activity, primitive intelligence, motivation; and that morality succeeds, follows, and flows from efficiency. As values and principles are higher and more difficult than ideals, and as ideals are higher and more difficult than motives, so, in consequence of mere unfolding of these terms, morality, or social wisdom, is higher than efficiency, and efficiency than intelligence.

To put the matter in negative propositions, no man can be moral who is not already efficient; and no man can be efficient who is not already of actively moving intelligence. We proceed from being observant to becoming efficient, and finally attain morality.

Now, this is exactly what we find in the facts of human development as displayed in genetic psychology and discovered by common sense. I am not here to discuss how interests grow from the activity of the intelligence, trying to dig facts out of the world quarry; how motives grow from interests by digging more facts; how ideals grow from motives by yet more digging; how values grow from ideals; how, after adolescence, we begin the whole process over again, and go from science to art and from art to philosophy. I am here to suggest some of these elementary principles of psychology apparently applicable to the present general inquiry, how to make a reasonably educative course of study. Intervals of reflection have led me to the opinion that educators who desire to avoid scholastic errors corresponding to the excesses of spendthrifts, must investigate the motives, the ideals, and the values befitting the human soul in each of its stages and derivable from such studies and exercises as may be admitted into educational sources. And I venture the prediction that, in order to reduce the now excessive number of topics in these courses, to set our topsy-turveydom in order with the true upside up and the true outside out, really to educate our youth, and to persuade the common conscience of American humanity into giving us adequate material support in this work of education, we shall yet have to devise a psychological curriculum. I have not the slightest doubt that we shall do this very thing, and that the outcome will be simple enough to surprise ourselves and to gratify the general public.

Obviously, this proposition amounts to throwing a gossamer bridge of dreams across the gulf fixed between the amazing material prosperity of the American world and the consequently mortifying poverty of the persons who, as teachers are absolutely essential to the maintenance of that prosperity against the dearly beloved, but nevertheless certainly barbarian, children constantly welling up out of our homes. But it seems to me that the eagerness of teachers to seize upon every new fact of Nature, every new poem, every new exercise, indeed, everything new, as a possible addition to the school course, proceeds from an intellectual activity discontented with the void of philosophical and psychological wisdom.

THE SCHOOL PROGRAMS.

The process indicated is synchronous with the physical growth and cannot anticipate that growth. The highest ideal that the primary school has any psychological right to set before itself for attainment is intelligence, soul-activity, motivation toward the external world. To expect efficiency of the boy of ten years is cruel, to expect morality of him is proof of total incompetence. The highest ideal that the elementary school has the right to seek for the boy of fourteen or fifteen is efficiency. The proper ideal of secondary education, with its climatic years, eighteen or twenty, is morality, the power to affirm and to deny, to do and to withstand. Unless the boy shows mental activity by the age of ten, and resoluteness towards ends by the age of fifteen, and honor, honesty, courage, fortitude, decency, truthfulness, purity, loyalty, self-denial and self-reliance by the age of twenty, there is little hope for him.

But these things are very different matters from the subjects everywhere set forth in courses of study. No doubt, for the courses are mainly objective. They are named to please public opinion, which desires visible metes and bounds. They can be measured and debated. They can be learned without any resultant education. But where the teacher sets before himself the appropriate ideal, when the words of the lesson ring in the ears, but the purpose of education beats in the heart, these objective partitionings of so-called subject matter lose their solidity and opacity, and the teacher beholds the soul of the learner.

In this summary I have tried to avoid details, but to say enough to fix the answers to the three questions:

1. What motive in the soul does this arouse? Is the question of transcendent importance in dealing with small children?

2. What idea does this furnish in the transcendent question for the boy or girl of twelve to fifteen?

3. What value or principle does this establish is the transcendent question in the last years of secondary education?

. . . It does not seem to me that fifty years hence we shall have (for example), for twelve-year-old boys and girls a daily program at school with such notations as United States history, spelling, writing, music, languages, manual training, drawing, geography, physical culture, arithmetic. . . . I hazard the opinion that subjective considerations will determine the progress of the schools.

What I am trying to say is that we shall not aim to plant a certain knowledge of Asia or of colonial history or of percentage or of carpentry in a boy, say thirteen years of age, but to evolve out of his growing soul certain powers, dispositions, and purposes.

We must thrust the course of study into its place as solely a means to an end. We must reject in the courses everything that is false to the period of life represented by the children of the various grades. We must repel knowledge for its own sake; there is no such thing properly known in the world of education—and in the process we will find ourselves simplifying our problem wonderfully.

In the remaking of our courses of study, we shall perform them not merely by years, but by days and minutes. We are doing this very thing, for educational psychology is actually getting into our schools. To accomplish this reform we must turn the schools inside out, driving tradition, as such, away and calling in the spirit of truth, which is reason.

CONCLUSIONS.

Certain specific conclusions appear inevitable.

The school day of uniform length for all pupils four to twenty-four years of age, is a mechanism to be discarded as soon as possible by the human spirit.

Utilitarianism that is mere materialism must not dictate writing drills to six-year-old children, or spelling drills to sixteen-year-old youths; making school harmful in the one case and hateful in the other.

We must locate the topics of arithmetic where they belong, according to the science of genetic psychology.

Since all history is essentially a story of morals, we will leave formal history to the years of well advanced adolescence.

Literature, music, drawing, and play will constitute the day's program for small children.

For the nine-year-olds, school will be a rather formal affair, mainly of drills in language, drawing, music, number operations, carpentering, or sewing, with reading and writing and games.

For the thirteen-year-olds, there will be the foregoing, with compositions and information lessons added. There will also be a foreign language and something of what we now include in arithmetic, geometry, and algebra.

The present scheme of one teacher for forty or fifty children for five hours a day, for five days in the week, and for forty weeks in the year, with incidental home lessons to be taught by the parents, will go by the board. Night work for pupils should be unknown. Individuals may benefit for a time by night study; but the race never, the community never, the next generation never.

I have not tried to answer the question, What are the essential studies? but the underlying questions whose answers must determine the more familiar questions. The purpose of the curriculum should be to develop intelligence in beginners, efficiency in the ten-year-old pupils, and morality in the adolescents. Every study and every exercise should pass the criticism of these tests. Each topic must stand, not on its own merits, as viewed by the world of active life, but on its merits as viewed by the world of education. There will be no more artificial sequences to last a year or ten years, styled grammar and arithmetic, etc. The early secondary education will be essentially informational and moral to lay foundations for science, art, and philosophy.

Not to be at least healthy, is to be an invalid; to be healthy only and not intelligent, is to be an idiot; to be only healthy and intelligent, is to be a parasite; to be only healthy and intelligent and efficient is to be a criminal, or at least a sinner, and dangerous to our fellows—and there are of these not a few, in prison and out; but to be all these things, and of sound morality also, is to be the educated man whom alone the school should graduate not before the fullness of time.

In the light of ideals, shining in their proper places in the pathway of education, let youth ascend.

These moral, efficient, intelligent, healthy, youth are safe in the world; and it is safe for the world to receive them.

In this presentation, I have absolutely rejected two familiar theories; that the child must pass thru the history of the race, and that he must be prepared direct for participation in the affairs of the modern world. I do not believe that either the historical theory or the sociological theory solves this problem of the curriculum. I have rejected the traditional theory that we must accept as very good most of what is and add the new as public opinion may dictate. And I have said, in terms as unequivocal as they are brief, that to my thinking, as I view the external world of reality and the real world of the soul, we shall find our solution in a genetic psychology that reveals the processes and stages, the functions and the interests, the motives, the ideals, and the principles of the soul as it journeys and sojourns from birth to death.

WILLIAM E. CHANCELLOR,
Washington, D. C. Superintendent of Schools.

The Course of Study

English Language Instruction

I.

LANGUAGE is the fundamental, universal art. It is not only necessary for the efficient communication of ideas among men, it is essential to thought itself in all its higher or human phases. Without it, apparently, we could do no thinking except such crude and rudimentary thinking as is possible to beasts. This is the state of deaf mutes before they have been taught to recognize and use words thru some other medium than speech.

Yet practical instruction in the use of language is still struggling for a definite place in the curricula of elementary schools.

One reason for this condition is doubtless to be found in the very universality of the art. In spite of Dogberry, reading and writing are necessarily school subjects. They are to be taught by special organized effort and with the use of books. Whereas language everybody uses. It is acquired in infancy, and without any special instruction, from association and by imitation. When a child first comes to school he has a vocabulary adequate to his needs and can use it effectively, and all thru life, whether literate or illiterate, his use of language, developed from practical experience, is quite sure to be adequate to his practical, fundamental needs.

So that apparently language instruction instead of complaining at its long exclusion from the elementary school, must justify its plea for admission.

Like the medieval school, the early American school had its *trivium* and its *quadrivium*. The former comprised the "three R's," regarded as the fundamental arts, and constituted the entire curriculum for the younger pupil. The *quadrivium* for the older pupils at first merely added to the trivium grammar.

Later, geography displaced writing, which was relegated to the minor rôle of a fine art. History arrived very much later and was the first of the "fads," which have enlarged and enriched the courses of modern schools. Its place was not permanently assured until the last quarter of the nineteenth century.

Grammar was the characteristic and conspicuous study of the higher schools. It gave its name to them and this name is still retained for the higher grades of the common school.

It dominated the schools not only in subject matter but in method. For in the "good old days" grammar was Grammar, the scientific study of desiccated language. At first it was chiefly Latin grammar; and the English grammars which followed, and indeed which still persist, were modeled after the Latin grammar, in spite of the differences of the two languages in spirit, in genius, and in the order of presenting thought.

But never, in either Latin or English, did it descend to so frivolous a topic as either the practical art of effective expression or the true comprehension of literature. The medieval *trivium* was richer, barren as it was to serve as the sole subject of study, for it included with grammar both logic and rhetoric, the science of thought and the art of expression. But our grammar stood sole and lonely. Not until late in the last century did even the colleges treat rhetoric as worthy of serious consideration, while in many elementary schools even yet language instruction consists in a course of predigested grammar.

For grammar rapidly forced itself into the elementary curriculum. It was the only answer suggested to the demand for instruction in the mother tongue. The mistake was natural enough. It is the same mistake that was made in regard to the study of the phenomena and laws of nature at first. It was basing the instruction of young children upon logic rather than upon psychology, upon the nature of the subject studied, more than upon the nature of the children.

In our discussion of instruction in the English language, it is necessary to differentiate carefully its two chief phases, what we commonly call "language study," and grammar.

The language lesson deals with the art of expression in words while grammar treats of the science of language. Both are important subjects and essential to anything approaching a "good education." But they are not the same subject and their confusion has vitiated much of the instruction in language given in the elementary schools.

They have, however, very intimate relations and when a child is mature enough to comprehend the scientific classification and nomenclature of grammar, the grammatical terms become very "handy" helps in his pursuit of the art of verbal expression, and later the two subjects become mutually necessary. Grammar is the science of language. It includes the body of classified knowledge pertaining to the laws of speech. Obviously, the possession of this knowledge will facilitate exact and correct expression. A genuine art of speech must rest back upon known laws. In other words grammar is the basis of rhetoric.

This relation furnishes an adequate reason for the study of grammar. The science is justified by its function. But a knowledge of the science does not convey skill in the art. Nor is it necessary for the beginner in an art to know as a preliminary all the laws of the art. That is, there is a vast difference between the establishment of an art on sure foundations, or even its use by a mature and competent artist, and its practice in elementary forms. A child does not need to understand the physical laws of sound and harmony before he can be taught to sing in time and harmony. Neither does a child need to know the laws of grammar before he can be taught to speak, and to speak correctly.

This leads us to the consideration of the "language lesson," its justification, its purpose, and its method. Afterward, we will consider the subject of grammar.

Why are language lessons justifiable in elementary schools? If everybody without being taught uses language with reasonable effectiveness, why take time in school to teach it?

First, there are certain conventions of literary art which cannot be definitely acquired without formal instruction.

While conformity to these conventions is not absolutely necessary to the effective communication of thought upon the simpler and more practical relations of life, failure to conform stamps one as uncultivated and injuriously affects one's standing among his fellows. This may not seem the highest reason, but it is certainly sufficient to justify instruction in the art. Conventionally correct speech and conventionally correct manners, while not so important as unmistakable clearness of expression and genuine kindliness of spirit, are still the proper media for these higher qualities. More than any other superficial arts they smooth the way thru the world.

Second, there is another very practical aspect to the study. Letter writing, one of the most important branches of literary art, is very dependent upon conventional forms and the use of words with exact nicety. Modern business communications are, more often than not, in the form of letters. The ability to write letters in conventional form, in "good English," saying exactly what one wants to say, is an absolutely indispensable part of the modern business man's equipment.

Third, the higher thoughts and the finer phases of thought cannot be expressed at all thru the crude homespun language of the unlettered. The very paucity of language prevents the thinking of high thoughts or of making those delicate analyses of thought that add incalculably to the joy and the fulness of life. In the case of Wordsworth's Matthew:

> A primrose by the river's brim
> A simple primrose was to him,
> And it was nothing more,

possibly because, lacking language, his mind had had no path to follow into the fields of the imagination, or the wider fields of thought.

Fourth, language training not only makes possible the expression, and hence the thinking, of high thoughts, it also makes possible the comprehension and appreciation of the best in literature, which is unseen by the untrained eye.

These effects of the study of the art of language—not grammar—are not limited to the mature student. The limitations of ignorance are suffered by the child in the primary grade as well.

Fifth, the great argument for early instruction in the art of language, perhaps, is the early acquisition of habit and its fixity when once acquired. The correct use of language is the result, not of knowledge, but of habit. A teacher who was overheard saying to her class, "Ain't that all the further we took?" when called to account said to me, amid her tears, "Why, I knew better." I replied, "Yes, doubtless you could have parsed your own blunder." And she could. It was the result, not of ignorance, but of habit, sheer habit, acquired in the uncultivated home.

The greater number of homes are uncultivated. If the schools are to remedy the defects of the home, and equip the children with correct habits of speech, that they may enjoy the immense advantage thus secured, they cannot catch them too early. Instruction must be definite and thoro and of the right sort, from the earliest primary grades.

The reasons for teaching language—not grammar—in the elementary school, suggest the method, and for this reason have been given so fully.

In order to indicate even more clearly the reasons for the methods about to be suggested, we will consider a little more definitely the object to be aimed at in the instruction.

It is evident from the above that I consider the aim of language instruction in the earlier years of school to be, not to give the children a technical knowledge of grammatical construction, but to train them to facility, accuracy, forcefulness, and elegance in their habitual use of English, both when speaking and when writing, and also to develop taste and the appreciation of good literary art in the work of others.

If the teaching of English to the younger pupils in our schools is to be sound and profitable, it is of the utmost importance that the aim, as above stated, be accepted and "inwardly digested," in both its letter and its spirit.

Doubtless most teachers would agree with the general statement of aim as here given. But, unfortunately, when it comes to the actual teaching, the chief effort is bent upon another aim altogether, namely, the teaching of the facts and principles of grammar. The homeopathic dose of calomel is a dose of calomel still, tho disguised and diluted. The "grammar notion" is so firmly fixed in the minds of teachers that it is well nigh impossible to eradicate it, even from teaching that is ostensibly for a wholly different purpose. And the authorities giving tests, no matter how earnestly they may have urged upon the teachers practical work in language, are sure to put the brunt of the examination upon grammar.

Moreover, the authors of nearly all of the language books, even the most modern, in their prefaces insist upon the paramountcy of practical language lessons, but in the body of the book continually "lug in" grammar, and to such an extent that the teachers are sure to feel the necessity of putting the chief stress on it.

For example, several of these books define the sentence respectively on page 7, 3, 2, 3, 5. One of the most progressive (theoretically) defines phrase and clause on page 63. This is done manifestly under the notion that before using an instrument of communication, or calling its name, it is necessary to be able to define it in words; which is as sensible as not to allow a child to name or play with a doll until he can define it in "good set terms," or to ride on or mention a horse until, like Bitzer, he can give a definition. Of necessity these definitions are meaningless to young children. Some authors, in a vain endeavor to be simple, resort to simplified definitions which are inaccurate and misleading—Bowdlerized grammar. Witness, from one of the books referred to above: "A group of words which (*sic*) tells one's thought is called a sentence";—not only careless English but an inaccurate and misleading definition.

No definition of a sentence can be given to beginners in the study of language, that they can understand. *Sentence* is a highly technical term, comprehensible only to those who have knowledge of its technical elements.

These are but illustrations of the foes that lie in wait to deceive and mislead the teachers who would teach language so as really and vitally to affect the thinking and the expressive powers of children.

The characteristics noted above are to be criticised not chiefly because of the futility or even the misleading nature of the instruction, but because of the influence of this early technical teaching on the spirit and method of all the work. "The trail of the serpent is over it all."

The aim of teacher and class alike is inevitably diverted from the real object of the instruction to a secondary function. Like the rudimentary tail, the notion persists that to be able to recite the rules and definitions of grammar is a prerequisite to the utterance of correct speech. The battle of psychology against logic in the teaching of children is a long and hard one. The logical development of the subject is constantly seeking the "solar plexus" of the Nature of the Child, and the favorite battle ground is the field of language.

The time comes, of course, when the teaching of grammar is a legitimate aim. Some of the simple, yet fundamental truths may, without harm, be introduced in the fifth or sixth grade of the ordinary school. Such facts are statements of the two parts of a sentence and of the more manifest functions of the parts of speech in the expression of thought. When the function of a word as such is spoken of the correct name of the word is better than a nickname. A name is a handle and when it can be applied with reasonable accuracy it is preferable to a substitute. It is well enough to call a dog *bow-wow* until the function has become associated in the infant mind with its source. Then the *bow-wow* should become the *dog*.

It is well in considering the relation of grammar to the aim of language instruction to recall the function of grammar. I cannot do better than to quote from the preface of one of the language books above referred to.

"Technical English grammar is analytic, not synthetic;

critical, not constructive. It helps us to get at the meaning of another's thought, not to express our own . . . It does not enable us to speak or write naturally or fluently, tho it may aid in detecting or correcting faulty expression."

This clear statement of the case suggests the proper time for the introduction of grammar—namely when the pupil begins the study of literature—when his discussion of what others have written has outgrown the childish "I like this," or "I don't like that," and he begins to state, crudely of course, reasons for the likes and dislikes. When the critical power begins its exercise then grammar is a necessary aid.

As the appreciative study of literature is one of the aims of the language lesson, it follows that grammar has a distinct office in language instruction. The question is one of time. That can not be definitely determined for all, but as was said above, in its cruder and simpler forms, it may profitably come into the fifth or sixth grade of the common school, but only in these elementary forms, and then a very, very little, just enough to furnish handles. Grammar is properly a high school study. But as many never reach the high school, it may without injury in a simple form enter into the seventh or better the eighth grade.

Let us accept this and stop forcing it in at every possible opening all along the line, as if we were afraid that somehow it would perish unless continually exercised. Or rather we hold it over the heads of children like the sword of Damocles, lest they become for a moment forgetful of impending doom.

We must not forget the fundamental general aim of the class exercise,—to arouse and maintain a vital interest in the subject. Such interest on the part of young children demands the free, glad exercise of natural powers, aching for exercise. Free and joyful expression of himself is a necessary aim in teaching a child, an aim that precedes and makes possible higher disciplinary aims. Formal grammar, even in the shape of mere definitions, before they can possibly be developed intelligently out of experience, dams the stream of interest and perverts the aim of instruction.

The second specific aim, the appreciation of literary art, has already been referred to and needs little more. This aim is not chiefly critical, in the offensive sense. Indeed, with young children this sort of study should be wholly obscured. But children should, thru the language lesson, as well as the reading lesson, learn to see the beauties of good literature.

The models for their own expression should be the admired work of authors. In the lowest grades, this can be little more than "I like" or "I don't like," but gradually the reasons may be brought out. And in the grammar grades a considerable degree of critical taste may be developed.

It must be remembered that the vast majority of pupils never go beyond the grammar school; and whatever of taste they acquire must be developed early. Especially by correlating language study with the reading lesson, enough may be accomplished to greatly benefit the puplis in their reading after leaving school.

The aims of language instruction in school, then, are to secure facility, accuracy, forcefulness, and elegance in the habitual use of language, both in oral speech and in writing, and to develop appreciative taste of good literature.

In the next article I shall discuss methods of teaching language in elementary schools.

Western Reserve University. C. B. GILBERT.

There is no danger of making education "cheap." The spirit of this objection, usually raised by people who want to give their stinginess the appearance of a philosophical interest in the moral welfare of the world, is emphatically disproved by facts. We do not make poor musicians of people who might have become excellent coblers by making musical education free. We do want to be able to make sure of the development of musical geniuses when we discover them, by reducing material obstructions to a minimum.

Observational Work for Children *

IN this country observational work for children is a matter of theory rather than practice. However much teachers who are particularly interested in geography may be gratified with the "new geography," they can but lament the lagging of this very important side of the subject. And its importance does not end with the study with which it is connected; it touches much of the whole primary program, besides being an asset in the grammar and high school work of the student. When teachers and school directors appreciate this fact, observational work will be insisted upon, whereas its practice is now largely a matter of sufferance.

The advantages to children of this method of study must be real and obvious if school superintendents are to indorse it; the men who are responsible for the efficiency of our elementary and grammar school work have delicate adjustments to make in their present crowded schedules. The simple school program of our fathers has been variegated and expanded quite to its maximum. Nevertheless the problem of the present in the elementary grades is one of correlation not retrenchment; little sacrifice should be made in variety of training, but careful attention should be given to the matter of useless duplication of work, and to dissipating the energy of pupils. Whatever means give promise of minimizing these two conditions should be well considered, if not empirically investigated.

But before we can see observational work in operation in many school systems of even moderate size, we must have a changed attitude in either one or both of two educational exponents, the grade teachers and the superintendents of these systems. When enough of the teachers in a system of schools

---

*Read before the Educational Section of the Eighth International Geographic Congress.

become convinced that this side of geography work is worth while, without doubt their wishes will be respected by their superintendents; or when the superintendent is satisfied with the wisdom of thus investing time and energy, his teachers will be pleased to co-operate. It is certain, however, that while superintendents in general indorse the observational phase of geography teaching, they demur on the ground that they can not find a place for it, or that their teachers do not succeed with groups of children out of the class-room; other reasons have been stated to the writer, but these two are most frequently given. The first objection disappears with the conviction that the work gives educational returns; the second is a premature conclusion due to conditions which we will consider in another connection. Another objection less commonly urged, but much more pertinent, is the teachers' lack of training for carrying on observational work with their classes; and few superintendents have been able to give the subject very special attention. Preparation for the work on the part of the teacher is to be desired; with the wide-awake teacher this lack of preparation is not a formidable objection. The numerous, and still increasing number of summer schools ought to give an opportunity for the hesitating teacher to acquire the confidence needed. Indeed a great deal might be done by our State departments thru the Institutes, city and county.

Nevertheless the hesitation which teachers have in reference to taking up observational work with their classes is for the present an important consideration. This hesitation is due in part, just as stated, to a lack of special training; to timidity in managing children in the field; and also to want of time. The removal of the first cause rests with the teacher; suggestions for this work may be found in books, in current educational literature, and in published courses of study; an investigation of the home locality, physical features, manufacturing and commercial interests, will show the extent to which these suggestions may be applied, and may also reveal many possibilities entirely local. The second cause comes either from expecting too much of children, or from too brief an experience with them in the open; it must be remembered that the novelty of the situation has an exuberant effect on the youngsters the first time or two in the field; anyhow it would be exceedingly depressing to find pupils taking out into the sunlight and exhilarating atmosphere their indoor decorum; as teachers perhaps we should if necessary cultivate an adaptability to juvenile outdoor feelings. More serious in its bearing on the problem is the lack of time; every lesson in observational work should be prepared thoroly; for the novice this means much extra effort the first year at least; furthermore, if the trips are taken the last period of the afternoon session, as may be done for the nearby excursions with least inconvenience to the program, that half-day's work may be lengthened some; no enthusiastic teacher will find it very discommoding to give this additional time to the progress of her classes.

This increased tax on the teacher, however, has its compensation. She becomes more efficient even in the estimation of children who appreciate freshness of information, freedom from books; this feeling of pupils in the primary grades is akin to that of high school or college students for instructors who are also investigators. On the other hand of far greater importance is the teacher's growth in intrinsic efficiency. As teachers, we learn much from books, lectures, etc.; but this learning does not insure teaching success, it may make possible a dangerous kind of mental stagnation. The teacher who, year after year, is an inspiration to pupils, keeps in touch with more than text-books; one source of such inspiration is the field study necessitated by observational work.

SOME DETAILS CONCERNING OBSERVATIONAL WORK.

For obvious reasons the number of pupils usually alloted to each teacher in the grades is more unwieldy, from the standpoint of good work, out of doors than indoors. Under ordinary circumstances twenty pupils should be the maximum number for observational work. Best results, therefore, follow making each trip in two sections, the substitute or practice teacher taking charge of the section left at their desks. No other part of the work, preparation or discussion, needs to be thus duplicated. If proper ideas prevailed among the supporters of our public schools, this repetition would not be required; a teacher should never have more than twenty pupils. Under our present system the Batavia method of having two teachers for each room loans itself easily to this division for outdoor work.

To be most effective observational work must be a regular part of the program. All teachers who have tried outdoor exercises understand that for the first time or two the children do not get entirely away from the picnic or frolic idea. Again, the repeated appearance on our streets or in the parks of a teacher and her group of pupils will shortly educate the general public out of its present glaring wonderment; we lament that in the minds of so large a portion of the American public, education means the elimination of first-hand knowledge. A regular time at stated intervals for the observational work will place it in the child's mind on a par with his other school duties. One or two trips in a season have little more value as an aid in geography than has any other outing.

All outdoor exercises should be preceded by a class-room consideration of the chief features of the trip. If a factory is to be visited, ascertain in this discussion what any of the children know of the raw materials used, of the methods employed, of the products, etc. This particular factory may mean food and clothing to some of the pupils; their parents may be operators, or otherwise connected with the plant. Suppose you plan a field study of soil, or that you are to visit a garden, a nursery, or a farm; pupils in even the lowest grades can contribute some information to a preparatory discussion of these topics. It is a trite expression that we never know a subject till we teach it; in a similar manner the child is made stronger by imparting information to his class-room companions. An anticipatory interest should figure in all observational work.

Children on these field trips should be directed in reference to points intended for their note-books; it has sometimes been thought best to have the notes taken by every third or fourth pupil, all using these notes later in the class-room. In the advanced primary and in the grammar grades each child should make field notes. In general, pupils from the elementary schools are more spontaneous in their questions than are high school or even more advanced students. Possibly this fact is true of children because they have not reached the point of self-consciousness that dreads putting a question which may reveal even excusable ignorance. This inquiring spirit necessitates the wisdom of the teacher's suggesting the particular topics she would have the class enter in their record of the trip.

Having made the trip, then should follow at the next geography period a further discussion, broader and more thoro than the preparatory consideration; in this the children themselves should take the major part; to the former the teacher contributed much. This summing up of the trip should be followed by a written report; the composing of this report is language work, differing possibly from the regular language work in having more spontaneity. A record of the trip should be made by each pupil, the disconnected sentences of the lower grades having as much educational value as the more pretentious compositions of the older children.

GENERAL SUGGESTIONS.

If a scheme of observational study has yet been worked out and tried, the writer does not know the fact; in several places work has been undertaken with one or more grades; but the real test of this as of any other educational effort is its graduated application to a complete course of primary study. Evidently such a scheme would be a matter of particular rather than general development. The size of the city or village, the economic and agricultural environment, the transportation facilities, the physiographic surroundings, the length of the open or field season, are factors that must figure in the order and nature of the work undertaken.

Nevertheless there are in almost every locality some basal phenomena which may be considered: where men are congregated, stores or markets exist; each region has its own products which seldom have a range equal to the necessities and luxuries used, therefore these stores and markets illustrate the products of other regions; weathering is universal, consequently the genesis of soils is a general topic; wherever there is rainfall the action of running water may be observed; rare indeed are the places from which some products, food or manufactured or raw material, are not distributed, the shipping station thus bringing the child in touch with the necessities or luxuries of his more distant fellows; a building in process of construction centralizes materials otherwise disconnected, and brings them together too in a lesson that makes instant appeal to the child; even in the humid climate which characterizes the sections of our country most thickly populated there are occasional seasons of drought when we may observe the early stages of a region becoming arid, the grasses first succumbing to the want of moisture, the higher plant forms following.

While concrete illustrations and lessons must always be characteristic of observational work, it should not be approached with the idea that the particular investigation carried on with children is an end in itself; this work has in common with every study connected with nature, or with the interaction of man and nature, an inspiring culture value. The information which children get out of the work is not of chief importance; the discernment it gives them in the relation of controling influences is of greater value.

And yet we question whether observational work as thus outlined would deserve a place in the primary program if it concerned geography alone; such work requires time in itself, time in supervision, time in preparation on the part of the teacher. teacher. The outlay does not warrant the investment if a single study, geography, is to receive the income. The fact that it is a profit-sharing scheme will be the reason for observational work eventually having a fixed place in school curricula. History, language work, arithmetic, drawing, and the pre-high school observational sciences, all may be enlivened thru this outdoor geography study.

The correlation of the activities of men makes history; the trend given these activities by the earth is the more essential side of geography. Naturally then, there is great variance between localities in their richness in the joint field illustrations of these two studies. We may feel that our city or town was founded so recently that it has little local history. But let the class visit the oldest building; among other queries occasioned by this place of historic interest arises the reason for its location; the explanation may or may not account also for the town's location. The child should early understand that centers of population are not of accidental distribution. Again, a trip to a flour mill affords the right opportunity for fixing the history of the shifting of the milling industry in this country. Some facts connected with the history of railroads will be more to the point after the children have inspected a freight house, noting what is being shipped and received, the cars of various companies, etc. If your region is one rich in historic associations, so much the better; strategic points in colonization or in war are seldom divorced from geographic causes.

We have already referred to the correlation of this observational work and language study. Children, no less than their elders, experience a minimum of inconvenience in reproducing what they know at first-hand; it is the attempt to rehash that inspires the feeling of repressive vacuity.

The alert teacher will be pleased with the number of live problems and computations these excursions suggest for the arithmetic period. The zest with which children handle this number work prompts many reflections in regard to the years pupils are made to study text-book arithmetic.

Sketching should be a part of the note-taking in much of the field work; sometimes this drawing in the field should be done with care, as carefully as outdoor working will permit; frequently, however, a rough field sketch with indicated measurements, etc., may be reduced to greater accuracy during the regular period for drawing.

It is needless to comment on the best place for studying plants, birds, insects, animals. A field trip with children given entirely to geography is like a train trip on which the passenger sees only the interior architecture of the car. One of the objections to this work with juveniles, it has been urged to the writer, is that children see too much; this gratifying condition invites manipulation rather than suppression; it is always easier to direct a situation than to create it. This phase of geography teaching is therefore common ground for most of the primary program; its correlation possibilities are obvious; its practice is invariably indorsed by the children, who often are wiser than we allow them to be.

SUMMARY.

1. In general the superintendents and teachers of to-day do not fully appreciate the value of observational work.
2. Reasons for the teachers' attitude:
    a. Lack of preparation, a condition which the ambitious teacher can remove.
    b. Dread of conducting parties of children, a feeling which will be removed by practice.
    c. Lack of time, a fact which may be propitiated by further sacrifice, with assured returns.
3. To be most effective, this work should have a fixed place in school curricula.
4. Details:
    a. Class-room consideration of the essential features of each trip should precede the trip.
    b. Teachers should make suggestions of the points intended for note-books.
    c. Further class-room discussion should precede a preparation of the written report.
5. While local conditions will tend to shape the field work undertaken, nevertheless some trips are common to almost every region.
6. Observational work is seldom an end in itself.
7. This work apparently has in it many possibilities in the correlation of studies.

Denison University, Ohio. Frank Carney.

Correlation, Co-Ordination, Concentration

III. Critical Examination of Theories

DE GARMO'S theory has much to commend it to the American public school. Col. Parker's is far more brilliant, and is, philosophically, one of the prounest monuments of American pedagogy. But its very brilliancy is its greatest defect. It has been well said of it that to carry it out, "it is necessary to have an adult philosopher to teach and an infant philosopher to learn. It is a physical impossibility to prepare two hundred thousand philosophers, more or less, to do the teaching, and it is a psychical impossibility to produce any infant philosophers to do the learning."

The theories of Ziller, Rein, and other Herbartians seem to us artificial. They put undue emphasis on the humanities and thus distort a child's view of life. Moreover, the inculcation of the real spirit and method of science is next to impossible under a scheme that makes science incidental to literature.

De Garmo gives due credit to all phases of thought and life. He makes ample provision for the humanistics in the form of literature, history, and language. He makes equally generous provision for science, which is treated as real science and studied independently by experimental methods. Lastly, the application of both the preceding groups of knowledge to the practical affairs of life is to be treated under a third co-ordinate head. Here is a chance to reconcil conflicting interests and theories in a rational course of study. The modern schools began with humanism pure and simple. The growth of science made a demand for the introduction of nature studies. Finally, the industrial development of the modern world created a demand for specific provision for the adaptation of the pupil to the practical affairs of life. So manual training, bookkeeping, civics, etc., were added. This has resulted in congestion. The relief is to be sought, according to De Garmo, not by ignoring one or two groups of subjects, but by giving them all equal standing, and so correlating them as to reduce the labor while yet retaining the benefit of mastering them all.

The late Dr. Edward R. Shaw, of the New York University School of Pedagogy, elaborated a complete course of study for the eight grades based upon the three-fold co-ordination of De Garmo. Each year's work is arranged in three columns under the following headings:*

Humanistic.		Scientific.		Economic and Civic.	
Material	Expressive and Constructive Activities.	Material	Expressive and Constructive Activities.	Material	Expressive and Constructive Activities.

To Dr. Harris's report it is objected (*a*) that it is not a discussion of correlation but of educational values; (*b*) that is contributes nothing to the solution of the pressing problem of how to organize the overwhelming mass of material in the present course of study so as to save time and gain efficiency; (*c*) that it is a philosophical argument from the adult standpoint and ignores the results of child-study; (*d*) that his use of correlation to apply merely to the adjustment of the pupil to his environment is unusual and unjustifiable. Dr. Harris's defense is (*a*) that the resolution introduced at Cambridge calling for the Committee of Fifteen employed the term "co-ordination," and (*b*) that the etymology of correlation shows that it means a "bringing into relation of what is co-ordinate." He simply adhered to the text that was given to him.

I. EDUCATION AS ADJUSTMENT.

Thus far we have spoken only of correlation as applied to various schemes of unifying the course of study. Dr. Harris, it has been pointed out, however, applies the term to the pupil. The studies are to be *co-ordinated* and by means of them the pupil is to be *correlated* with his environment. Altho none of the other educators whose theories have been here considered agree with Dr. Harris in the use of the term correlation, they one and all declare that the purpose of their several schemes is to adjust the pupil to his environment.

---

*A new Course of Study. Edward R. Shaw. D. Appleton & Co. 1904.

I. The Social Function of the School.

No educational philosophy, system, or method is sound which neglects the all-important consideration that man is of necessity a social animal. Not only is he destined to live with his fellowmen and to co-operate with them in social and economic institutions, but he has social instincts which the educator must employ in the pupil's development.

So important is the social function of the school that some educators place very great emphasis upon the social instinct in the child as a determining factor in school methods and organization. Thus, Colonel Parker says: "The end and aim of education is community life. The child should be a citizen to all intents and purposes the moment he enters the schoolroom; or, in other words, he should become thru teaching and training an efficient citizen of his little community." Professor Dewey emphasizes the social function of education still more strongly: "I believe," he says, "that the school is primarily a social institution. Education being a social process, the school is simply that form of community life in which all those agencies are concentrated that will be most effective in bringing the child to share in the inherited resources of the race, and to use his own powers for social ends."

"I believe that education, therefore, is a process of living and not a preparation for future living."

Professor Dewey's theory is to be highly commended for the emphasis it places upon (*a*) the social aspect of education and (*b*) the active side of child-life, which unquestionably is developed first and should therefore be utilized more largely in primary education than it is. The child has sometimes been conceived as an individual living for himself. On the contrary, man must live his life in relation to other human beings. The school should train him for this social function. The limitations of the theory are (*a*) that it is as yet not fully worked out;

(*b*) that it requires an enormous amount of material upon which to keep children at work; (*c*) that it demands highly skilled teachers; (*d*) that the smallness of classes essential to its success precludes its general adoption in the crowded and costly public schools of the city.

The theory, however, in modified form, can be applied to schools as they are, by emphasizing in our courses of study and teaching *action* rather than *absorption;* by making our primary instruction concrete not merely thru the sense of sight, but thru constructive and creative work, thus affording abundant exercise for the imagination in the domain of reality.

The school may be regarded as an organ for the transmission of civilization. The wealth of one generation passes over in bulk to the next generation. But not so the world's knowledge. Every baby born into the world is raw material for the teacher. You may accumulate and capitalize learning, but you cannot accumulate educated human beings. Each generation, as it appears on the scene, is as ignorant as the one before it. Every actor on the stage of life must learn to play his part by the same process of individual effort by which his predecessors achieved success.

We are to look upon the teacher, then, as the organ of social self-consciousness, by which humanity becomes aware of its own achievement and is able to employ the deeds of its yesterdays as stepping-stones to a more glorious to-morrow.

II. Social Co-operation a Condition of Mental and Moral Development.

"All consciousness," says Hegel, "is an appeal to other consciousness. The inner life is also an outer life. Spirituality is just intercourse, communion of spirits. What is love but the consciousness that somebody is there who either loves me or does not? What is self-respect but a conscious appeal to others to respect my right or my worth? Free me from my fellows, let me alone to work out my salvation and surely I shall now for the first time show who I am. No, not so; on the contrary I merely show who I am not. I am no longer friend, brother, companion, co-worker, servant, citizen, father, son; I exist for nobody; and ere long, perhaps, to my surprise, generally to my horror, I discover thus I *am* nobody. My freedom from others is my doom, the most insufferable form of bondage. Could I speak to a living soul! If any one knew of me, looked at me, thought of me, yes, hated me even, how blessed would be the deliverance!"*

This instinct, which demands that my consciousness be interpreted and completed by other consciousness, finds recognition by the teacher in the recitation. Here the pupil measures his powers against those of his fellows; his partial view is corrected by other but different partial views. He meets approval or disapproval, co-operation or opposition, and thus sees himself in a manner as he appears to others.

No human being, however wise, is able alone to educate a child. This is the significant fact that Locke and Rousseau overlooked in their elaborate systems of tutoring. A child brought up after the fashion of Emile would be as Davidson says, "an altogether fantastic and impossible creature, a human automaton, neither man nor beast, utterly unloving and unlovable." There is no provision for social development thru the only means by which such development is possible; namely by living with other children. Rousseau's Emile lived by himself with only the tutor for companion. The end of education is to learn how to be a man. "On leaving my hands," he says of Emile, "he will not, I admit, be a magistrate, a soldier, or a priest: first of all, he will be a man." From one to twelve education is to be entirely negative; the pupil is to remain during this period "without a prejudice or habit," and is to "lose as much time as possible." When it is recalled that the great majority of children leave school at the age of fourteen, one can imagine how Rousseau's ideal would, if carried out, strike the modern tax-payer! At fifteen Rousseau's pupil is to have only a little knowledge, is not to know *even the name of history;* but will be industrious, temperate, patient, steadfast, and full of courage.

Locke was not so erratic as Rousseau, but he also conceived education as a process of developing *one* child at a time. Both reformers name a number of social virtues which their pupils are to possess, and which, according to their writings, are to be acquired in solitude or with no other society than tutors and parents.

---

*The Spirit of Modern Philosophy. Josiah Royce. Houghton Mifflin Co., Boston. 1896. P. 207.

It is needless to say that social virtues cannot thus be artificially cultivated. In order to teach a child how to behave in society he must live in the company of others. It would be no more difficult to teach one to play the piano by an elaborate explanation of the process, than to impart the great social virtues without living the social life.

Opposed to this individualistic theory is that other, which looks upon society as an organism and a child as one unit of it. The unit has an individual life, indeed, of its own, like the cell in animal tissue; but the end for which the unit was created is the service which it can render to the organism. Man was created a social being; all his virtues, services, triumphs, joys, and rewards grow out of his social relations. "For the body is not one member, but many. If the foot shall say, Because I am not the hand, I am not of the body; is it therefore not of the body? . . . But now hath God set the members every one of them in the body as it hath pleased him." I Cor. 12: 14–18. According to this view the individual life is indispensable and is therefore the object of first concern. But its highest function is that of a social unit. Society is here and imminent—a moral atmosphere which we *must* breathe whether we will or no, an economic condition to which we must adjust ourselves or perish. The social ideal of education takes into account these obvious facts. It does not neglect the internal laws of development, but by gentle and persistent pressure the plastic organism of the individual is adjusted to the external conditions imposed by the social whole. This process consists chiefly in acquiring the use of certain conventional symbols and in practicing recognized ways of right thinking, feeling, and doing. We thus reach the exact opposite of Rousseau's conclusion, for our chief end of education is the formation of those "habits" and "prejudices" which he would shun.

Pedagogical Discussion

The First Two Years in School

Developed for Primary Teachers in Streator, Ill., at a Teachers' Meeting. Discussion by

M. G. Clark, Superintendent

THE TEACHERS' ATTITUDE (METHOD).

(1) To gain the confidence of the child. To introduce him to his new environments, stimulate him to a healthy activity herein, and thus fix his attitude for the years to come. The school habit is largely the product of these years.

(2) To begin the work of seeing; close observation.

To secure the habit of definitely imaging the subject of each discussion.

Test.—Is the required imaging process within the capability of the child?

Is the work presented in such a way that the child will be able to image it?

Is the matter presented of such a nature as to stimulate the child to image?

Does the child show evidence of pleasurable activity in the imaging process?

Am I destroying the child's pleasure in imaging by confining his activities to reproductions, or by unnecessarily repeating subject matter already assimilated?

It is the strict adherence to this principle that makes all the difference between slipshod and effective teaching. It likewise marks the difference between method and methods.

Primary methods are a delusion. Primary method is everything.

(3) To give to the child opportunity to express *himself*. To develop *power* thru expression. It is thru the expression that the image is localized in personal experience. Thru expression each new image finds its true relationship to other images and mental growth, development of new strength, results. Growth is pleasurable.

Test.—Is the required expression something that the child has had opportunity to image?

Is the required expression something that you have every reason to believe the child should desire to express?

Has the child the necessary technique to express his image?

Technique must be kept a little in advance of required expressions. A lesson in technique is not a lesson in *self*-expression.

1. PHYSICAL EXPRESSION.

Physical expression, in the child, is the natural mode of expressing changes of feeling, both physical and mental. Joyous physical activity or tears has up to this age been the index of his mental condition; the expression of his mental life. "Joyous physical activity" should characterize the primary rooms. Care must be taken that physical activities do not become mere exercises. They must stand the test of *self*-expression.

2. MANUAL EXPRESSION.

The co-ordination of mind and body has up to this period been mostly thru play; a physical expression. A closer co-ordination is now a necessity. The holding of chalk or pencil the cutting of paper; the modeling of clay; the fashioning of furniture, tools, clothes; the weaving of splints or paper; all have physiologically and psychologically for their purpose this closer co-ordination. Only those phases of manual expression are allowable at this stage that deal with the larger forms; expressions requiring not too tense a concentration of effort.

Test.—Be sure that all manual expression is the working out of an image, clear, definite, really existing in the child's mind.

Be sure that it is *his* expression; the result of his *desire* to express. Differentiate manual expression from manual technique. Expression presupposes technique. See to it that the required expression has some definite value in itself. You should be able to justify your effort to yourself thru the definite purpose you had in mind in presenting it.

Some purposes that may need to be worked out.

Mental and physical co-ordination.

Definitizing a reality-image.

Esthetic to taste culture.

Training in accuracy. (Judgment.)

Free expression. To satisfy desire of individual.

Technique.

Correlation of school environment with that of the social or industrial world.

The teacher will readily think of many more.

The teacher who thinks at all deeply will readily discover the differences existing between the ordinary "busy work" and *manual expression.*

3. LANGUAGE. ORAL AND WRITTEN.

The normal child delights in oral expression. His home life has given him an opportunity for this expression in an atmosphere of encouragement and praise for each new evidence of growing power. Thus, in a very few months, he has mastered the language of his home environment, either in its purity or with all its inaccuracy, and perhaps vulgarity. In either case he has mastered an oral language and the effort has been pleasurable. Thru this oral expression his reality-images are associated (assimilated), and the child discovers himself growing in mental strength. His images are becoming a part of his mental muscle. He delights in strength. Thus the process has been pleasurable.

It is the duty of the teacher to preserve this attitude toward oral language expression. If the child images, he desires to express it. This desire should be satisfied. The task of the teacher is to retain this attitude and at the same time to counteract, so far as is possible, the inaccuracies or vulgarities of the old environment. If this attitude is retained the child's growth is assured. If it is lost the child's mental power becomes "walled up" and he is psychologically asleep.

If the child is really and pleasurably awake, his instincts are also awake. Among these is the racial, physical, and psychic, instinct of *imitation*. If the child once really discovers that the chalk in the hands of the teacher talks to him, this instinct will assert itself, and the child will try to make the chalk talk to others. Thru this imitative instinct the written language is begun and if begun aright, the new activity, newly discovered method of expression, will become a new source of delight to the child; a new avenue of developing strength.

4. ESTHETIC EXPRESSION.

I believe every soul either enjoys or is capable of enjoying those ethical or esthetic ideals that give to life its color, that differentiates the intellect from the soul, that gives character to the mind. I believe that no educational process is complete that neglects this principle.

(*a*) *Drawing and Painting.*—While these might have been classified under manual expression, yet psychologically they are the beginnings of the esthetic expressions. Crude at first, they are the efforts toward the expression of an idealization; among the very first efforts of the child to project himself. As such they are of great moral value. They cultivate taste; the children instinctively approve or disapprove, as the effort possesses truth or is false to their idealization. The thoughtful teacher will note carefully the development of this taste as the months go by, but will never attempt to force it. Note the choice of colors is true to the child's primitive idealizations.

As his idealizations develop, watch for the change in his primitive color instincts. Taste is developing.

(*b*) *Music.*—Thru music, the child naturally co-ordinates the esthetic with the physical life. "Joyous physical or psychic activity" is almost always accompanied with some form of "joyous musical expression." Primitive life studies show how closely music entered into every phase of primitive *self*-expression. Time and tone values may be lacking, or seem lacking, in the individual child or adult, but rhythm, never. Scientists, psychologists, declare music to be of great moral value. The character of a nation, a tribe, or a family, is revealed by the character of its music.

The simple exercises of the first two years should give ample opportunity for the natural rhythmic expression of the individual child.

(*c*) *Ethical.*—The six-year-old already has his ethics. They are composit; derived from his companions, his home associations, his new school environments, and the various sources of his idealizations. It is the duty of the school to give him the opportunities for ethical idealization that shall ring true; give him standards by which he may establish himself; give him opportunities to measure himself by his established standards. It is here that the attitude of the teacher and the general conduct of the school is tested. "What is the ethical effect of my attitude upon the child"? This is the most important question the teacher has to consider. Its answer differentiates the true teacher from the time server.

All that has been said of the various forms of expression may be said of ethical expression. They are, however, certain sources of ethical culture of such great importance to the child the primary teacher cannot afford to neglect them.

(1) *Picture appreciation.*—Within the range of the legitimate subject matter of the first years of school, are many pictures of worth the child will delight to study. These pictures should become so familiar to the child as to be regarded as his personal friends. Landseer, Van Dyke, Millet, and others

of the masters should, thru the children's interests, become household words in the homes of the city.

(2) *Literature.*—What has been said of picture appreciation is equally true of those bits of choice literature that are within the comprehension of the child, and especially within the range of the subject matter of the year. Eugene Field, Stevenson, Longfellow, Whittier, and others have all contributed to the child's ethical pleasures, and there is no excuse for the teacher who leaves unenriched, thru neglect of this field, the lives of her children.

(4) To know the child psychologically as the physician knows him physically. To watch his periods of growth. The child grows mentally as he does physically, not steadily day by day, but by periods. There are psychic periods of rapid development; again periods of rest. The thoughtful teacher knows the period thru which the child is passing. She knows when to give opportunity for rapid advancement, when to slow up lest she should cloy his mental appetite.

What would probably be the effect of endeavoring to push a child during a period of mental rest?

(5) Formally to teach the child to read intelligently, to write legibly, to spell accurately such words as naturally belong to the school work of these years.

Seeing evil in its true garb is the first step towards extirpating it. Light is the true reformer.

Education is the armor without which nations must fail in the battle of civilizations.

The natural resources of a country are as nothing, however wonderful they may be, when compared with the resources dormant in the minds of its children.

The Autobiography of a Teacher

VII—Journalism

AT El Paso, one has the choice of several routes to Philadelphia. It may have been a still unquenched love of adventure, or it may have been that Puritan conscience which keeps its possessor alert to get the very best out of every experience, that made me weigh the advantages of these several routes. I was very much more alive than I should have supposed possible after such exhausting adventures as I had met in New Mexico. But it is hard to kill lads of twenty-three, even when they are of rather slender physique. It is characteristic of persons of high nervous organization, that however far spent they may be, their power of recuperation seems always ready to work the miracle of recovery. I decided to travel by way of New Orleans. The World's Fair was then in progress, and the mere fact that I had lost all I possessed, and two thousand dollars in addition, seemed no valid reason why I should forego the obvious advantage of a day at the Fair.

I reached New Orleans early in the morning. I got my breakfast at a quaint old market near St. Charles Street. Colonel Peyton knew the Exhibit by heart, and took me to everything that was worth seeing. We had luncheon on the grounds, and when night came, the Colonel took me to his own pleasant boarding-place for a friendly dinner. Then he saw me off on the night express for the North, a very tired but well-contented wanderer.

That day in New Orleans was very well worth while. I do not remember much of the Fair,—I have seen so many world's fairs since then, and they are all so much alike, but the city itself made a deep impression on me. When I came to write what is perhaps the most interesting chapter in "John Percyfield," the chapter called "Moonlight," I utilized these impressions to the extent of making the Percyfield family spend an entire winter in New Orleans, and I think I did no violence to the local geography. As the little story is told in the first person, and naturally includes many of my own personal adventures, it was easily mistaken for a genuine autobiography. Many of my later friends still believe that as a boy I lived in New Orleans. Indeed I *almost* believed it myself. If one have a vivid imagination, and write in the first person, one becomes so thoroly identified with the teller of the story that it grows difficult to distinguish between the real and the imaginary events. When I finished writing, and realized that the people in "John Percyfield," tho suggested in some cases by persons I had really known, were, as far as the story is concerned, essentially children of the air, a horrible homesickness took possession of me, and I felt like one bereaved. But I suppose these periods of intense loneliness come to all who spend a part of their time in the imaginary world of a story they are creating or in an ideal world of abstract thought.

When I reached Philadelphia, the excitement of the journey had exhausted its stimulus, and I was really ill. Again delirium came, and that curious experience of double personality,—the suffering body, one person, and the calm, onlooking spirit, another. I might add that of recent years this sense of duality has deepened. I can produce it at will, and at times experience it continuously for hours or even days. At such times the body becomes a tool, accomplishing its work in the three-dimensional world much as an actor plays his part on the stage. But the master playwright, the director, is a spirit, quite untouched by the fatigue and hunger and cold of the body, and living the major part of its life in an ideal world of larger emotion and thought. I think it is extremely wise that this sense of bodily detachment does not come suddenly, but so slowly that one has at least the opportunity to learn how to use it for human good. It is an attitude fraught with distinct dangers. One runs the risk of living too much in the spirit, of treading with indifference or even with contempt that bodily life thru which the spirit must accomplish its earth-mission. And one runs the great risk of all extreme idealism, the risk of being selfish and humanly unsympathetic. But, on the contrary, it becomes the material out of which heroisms are built, if it be tempered with the divine sense of brotherhood. I am still a young middle-aged man, or an old young man, according to the mood, but I can see already that this attitude of spirit which separates the real self from the body is going to do away with the tragedy of old age and take away the supposed sting of death.

But to return to the days when I was only twenty-three. I recovered very rapidly. My mother nursed me, which had much to do with my rapid recovery. And, in addition, I have much india rubber in my constitution. I have been dangerously ill many times in my life, but the crisis once passed, I rebound with astonishing rapidity. As soon as I was on my feet I had to face a number of serious problems not particularly attractive to an idealist. I felt in duty bound to make money, to make it as soon as I could, and to make as much of it as I could, and this not for the agreeable purpose of lifting the family fortune to their former glory, but for the more prosaic purpose of paying my own debts and standing once more square with the world. As a matter of fact, I took this debt much too seriously. I was paying a good interest on it,—six per cent. I had insured my life, so that in case of death, my "estate" should not be bankrupt. Furthermore, the debt was only about two thousand dollars. But at twenty-three that looks like a large amount, and especially if it have a minus sign in front of it. In spite of my exaggerated sense of burden, however, I realized even then the traditional silver lining,—I still had the most precious of all my possessions, my family; I had been spared the grief and mortification of causing any money loss to others, and above all I had come out of the experience without any permanent bitterness of spirit, or any loss of confidence in humanity. All the passion and tempest of those last days in New Mexico spent themselves in the one storm. The experience naturally left its marks, and indeed, had it failed to do so, it would hardly have been worth while. For one thing, it cured me quite effectively of any temporary money-hunger. For another, it taught me to be careful about money matters, and to want independence rather than wealth. Personally, the experience was worth all it cost me, even the physical suffering. The worst aspect of it, and the one that I felt the keenest, was that my hands were so completely tied that I could be of no material service to the family, and especially to my mother. This regret haunted me for many years, and the more so because my mother died before I was wholly free from debt. But the regret has gone now, for I realize that she had something infinitely more valuable than anything I could have taken her with my hands.

It was in this emergency that I turned to journalism. It surprises me even now that I should have given up a profession in which I was really well-trained, for one in which I was almost totally without experience, and that I should have left Philadelphia, a city that I knew and loved, for New York, a city that I neither knew nor cared for. But this is what happened. And it is the more surprising because neither journalism nor New York did anything to invite even in the most remote way my service or my presence. I was wholly an intruder.

I went over to New York, one memorable day, armed with several journalistic wedges. I carried with me a letter of introduction from Colonel Harding to the editor of *The Scientific American.* I knew slightly, but in a very friendly way, the editor of *The Iron Age.* A cousin of my mother's, whom I had never seen, was the editor of *The Churchman.* It was a day full of experience, and for me at least, a day of fate.

The presiding genius of *The Scientific American* was at that time a very remarkable man, Mr. A. E. Beach, the son, if I remember correctly, of that old-time journalist, Moses Beach, who established the New York *Sun.* His genius showed itself not only in the editorship of a very popular scientific paper, but also in the conduct of a large patent business, the largest, I think, in the country. Mr. Beach was himself a small man, almost insignificant in appearance, but when he turned his eyes on you, you were suddenly aware that you were in the presence of a man of power. His capacity for work was greater than that of any other man I have ever known. His methods were singularly direct. He had no private office, but occupied a desk, along with at least fifty other workers, in the one very large room that constituted the business office and work-room of the firm. In virtue of this arrangement, Mr. Beach was open to any visitor or any employe at any moment of the working day, and while it had its disadvantages, it gave him a greater grasp of all the details of the firm's activities than would otherwise have been possible. When my own card and Colonel Harding's were carried to Mr. Beach, I followed close upon their heels, and was immediately seated at his elbow and asked to state my errand. Being equally direct, I said that I wanted to get on the staff of *The Scientific American.* Mr. Beach replied very promptly that the staff was full. This may have discouraged me, but it did not drive me away. I was so much in earnest that I fear I must have been as importunate as the poor widow was with the unrighteous judge. Mr. Beach came and went, glanced over papers and despatched messenger boys. From time to time he addressed a few remarks to me, and handed me models on drawings of what might be called scientific puzzles. In reality, he was quizzing me, and I was learning anew that out in the world every day is examination day. Fortunately, the puzzles were not very difficult, and I was able to explain them all. Finally Mr. Beach ended the interview by saying that there was no place on the paper, but that if I cared for it, he would give me a place in the patent department. This was not what I wanted, but I said that I would think it over and write to him from Philadelphia.

The editor of *The Iron Age* was Mr. Bayles. His talk was so practical and helpful that I have often had occasion to recall it. He told me his own experience and how he had laid successful siege to his present paper. He had been the editor of a country journal, but had not been contented with his work and prospects. He studied the columns of his many exchanges and decided that he would most like to be the editor of *The Iron Age*. He read it carefully every week, made a study of it, in fact, and whenever he had anything that he knew would be "available" sent it down to the paper. Later, when he came to the city in person, he called at the office, was cordially received, was encouraged to continue his contributions, and to make a long story short, ended by being made editor-in-chief. He told me as the result of his own experience, and with such an air of genuine conviction that I believed him on the spot, that by laying intelligent siege to it, I could get on any newspaper in New York City that I might choose to select. He advised that I accept Mr. Beach's offer, since he knew that once in the office, I could soon work my way out of the patent department and onto the editorial staff. In a word, Mr. Bayles' talk was just what I needed and heartened me up mightily.

My cousin of *The Churchman* did not attempt, I think, to make even an ecclesiastical under-writer out of me, but kindly gave me a card of introduction to Mr. Roswell Smith, who was then editor of *The Century*. I carried it in all haste to Union Square, and was so fortunate as to find Mr. Smith in his office. He gave me a full quarter hour of his valuable time, and tho he had no post to offer me, he showed me that helpful kindness which it seems to me literary people are always ready to extend to would-be literary people. Finally he arose and held out his hand,—the interview was over. "So you want to write?" he said. I eagerly assured him that I did. "Well," said he, "if you want to write, write!" and bowed me out of his office so courteously that I hardly realized that in effect I had been dismissed.

As I journeyed back to Philadelphia on the afternoon express, it occurred to me that I had gone a long distance to get such very obvious advice, but somehow the longer I thought of it, the sounder it seemed to me. Since then, I have often heard the words sounding thru my consciousness—"If you want to write, write!" They are the best of good advice to every literary aspirant, for in fact they sum up all there is to be said.

There is no calling so thoroly democratic as literature. The editor does not care who you are, who your grandfather was, whether you went to college or not, what your standing and honors may be, whether you are tall or short, well-dressed or shabby, whether your friends are influential or obscure. These facts are not pertinent. There is only one question for him and it is this—"Can you write?" If you *can* write, even indifferently well, there is work for you; if you can write moderately well, there is important work for you; if you can write very well, you have the world at your feet. To write easily is not necessarily to write well. Sheridan, indeed, thought the reverse, and declared that "easy writing is damned hard reading." I am not sure that he is correct, but at any rate, it is a useful caution. Still less is voluminousness a hall mark of literary ability. It is fatally easy to fall into the writing habit just as it is into the talking habit, and to do it to very little purpose. The distinction between mere writing and literature is that the latter possesses a certain quality so subtle, so elusive, that it can hardly be defined. Even to name it is to do it a certain violence, but in the absence of any better term we may call it the literary quality. Its presence lends distinction to the scrappiest note, the most hurried article. Its absence condemns much good paper to the waste-basket. The tragedy of all literary effort is that the persons who fail of this quality in their own writings are least able to detect it in the writings of others, and as they cannot honestly tell the difference between good and bad, they cannot for the life of them tell why other manuscripts are available and theirs are not. This, I think, is the origin of the tradition of the "hard-hearted" editor. In reality, he is very human, very considerate, very desirous of finding merit in every manuscript he handles. But the most acute of editors cannot tell beforehand. He may have his own opinion about it, but all he can honestly say is that if you want to write, you must go ahead and try.

In a few days I was back in New York. I had decided to take Mr. Bayles' advice and go temporarily into the patent business. And I had decided to take Mr. Roswell Smith's advice and write. I established myself at an old-fashioned boarding-house on East Ninth Street, just off Fifth Avenue, a place that the family knew about, and there I lived for about eighteen months. On the whole, they were months of considerable happiness. In my desire to pay off my debt, I lived most economically, but that I think was no disadvantage. In spite of the fact that I have never possessed robust health, I seemed to have an irrepressible vitality that served me very well in its stead. Often, after a hard day's work at the office, I used to write all evening until eleven or twelve o'clock. I do not remember that the writing amounted to very much, but it was useful apprentice work. My chief cause of uneasiness was my mother's health. This at times was so precarious that I was almost desperate. She spent the summer in the mountains, and a part of the following winter at Lakewood. When she was at home, I went over every other week, sometimes every week. The office closed early on Saturday, so I took the afternoon express and did not return until the early express on Monday morning. During these visits, I went thru all the emotions of a homesick schoolboy. On Saturday evening I was fairly jubilant. On Sunday morning I was still pretty well on top of the wave. As the day wore on, my spirits fell. By Monday I was utterly wretched. To this day, I hate the journey from Philadelphia to New York, and especially in the early morning. It is hardly surprising that I never got to feel at home in New York, and cordially disliked it to the very end.

The patent business is really very dull. It consists in taking vague and usually unimportant ideas and putting them into such persuasive shape that the Patent Commissioner will regard them as novel. Often one has to supply the ideas. There are, of course, tremendously interesting patents that revolutionize industry, travel, pocket-books, and a lot of other things, but they are the exception, not the rule, and they are not likely to come to very junior solicitors in a very big office. I disliked the business quite as heartily as I expected to. But

I went into it with rigor and vigor. Mr. Beach said nothing, but I knew perfectly well that he was watching me. At the end of a fortnight, I went to his desk and asked if he were satisfied with what I was doing. He said that he was, so I suggested that I should like to be put on the pay-roll, for up to that time I had received no money. He promptly scribbled an order on the cashier for fifty dollars. After that every Saturday afternoon a little envelope appeared on my desk containing twenty-five dollars. Later it was increased to thirty. I suppose that the envelope system is very sensible and practical, but somehow I always chafed under it; I felt like a servant getting his weekly wages. A monthly cheque would have suited me much better.

I devoted another week or two to mastering my very modest part in the great patent business. When I was quite sure of myself I again went to Mr. Beach and told him that I wanted to write for the paper. I offered to write at night, if he would give me some assignment, and then if he did not use what I wrote, he would be at no loss, since I would continue to perform my usual duties in the patent department. It is rather difficult to refuse such an offer, and particularly difficult for an old man to refuse a very young man. Mr. Beach gave me a book to review. It was Commander Schley's book, "The Rescue of Greeley." I knew a little about the subject, for as a boy I had pored over Kerne's "Arctic Explorations." After the manner of young reviewers, I wrote a very slashing review. Mr. Beach, in turn, cut my review to pieces, but out of the fragments we gathered up enough to print. He soon sent me other books to review, and got into the habit of calling on me in the daytime, in case of any editorial emergency. I was only too glad to respond. These interruptions were particularly frequent on that day of the week when the paper went to press. Sometimes, at the last minute, Mr. Beach would bring me a mass of material and ask me to write an editorial of given length, adding that the printer's boy would wait. So while that grimy little urchin sat at my elbow, I hurriedly ran thru the material and proceeded to turn out an editorial of the required dimensions. I gave such attention to the unities of composition as the time allowed, and tho I was panic smitten the first time Mr. Beach asked me to do it, I think in the end some of my very best writing was done under just such pressure. All this was discipline of a very practical sort.

It may be that newspaper work, long continued, has a tendency to make a man superficial. But for a time, let us say a year or two, I know of no better training. It makes one's knowledge available, gives it ready currency, and gets one into the splendid habit of settling down directly to work without fuss and friction. I value my own experience on *The Scientific American* so very highly that I could wish every one of my boys might serve a similar apprenticeship. At college the instruction in English had been very meager. The process of setting out to write was difficult and time consuming. Time and place and mood had all to be consulted. There was even a choice in pen and ink and paper. The light had to be just so. All must be quiet. No one must dare to interrupt. Worst of all, when these many precautions had been duly observed perhaps nothing came of it. Apparently the very elaborateness of the preparations frightened off the Muse. The only results were a much chewed pen-holder, rumpled hair, blotted paper, and the horrible suspicion, sending cold shivers down your spine, that perhaps after all you were not meant to be a writer! There are few of us who have not gone thru such agonies as these.

In a newspaper office, the conditions are wholly different. There is no time for such nonsense. One must bring to the work a will strong enough to over-ride all trifles and do good work in spite of them. On a weekly paper the conditions are naturally much less strenuous than on a great daily, but they are exacting enough to be a priceless training. My own work must have been very crude at the start, but it evidently showed some signs of promise, for gradually my patent work grew less and less, and my newspaper work more and more, until finally

Mr. Beach formally transferred me from the one to the other, and I was correspondingly happy. Mr. Bayles' method had worked, as he said it would, and my siege of several months had met with complete success. The victory, merely as a victory, was worth much to me. It got me back into the habit of success, and helped to restore a helpful self-confidence that had been rather badly shattered by my New Mexican experiences.

My work on *The Scientific American* was really a great pleasure to me. I did everything from advertisements and obituary notices up to leading editorials. To be sure much of the work was cut out for me, and doubtless would in time have become distasteful to so pronounced an individualist. But during the little more than a year that I worked on the paper, it never lost its charm. I think I even enjoyed the hack work, the taking badly written stuff and whipping it into some sort of literary shape. I recall one manuscript in which the opening sentence contained by actual count fourteen "ands." I marked it "not available." Whenever a manuscript contained really valuable ideas, I tried to make it readable, however unpromising the original English. But as the weeks went by, I began to be assigned to first-hand work and found that interesting, from a scientific standpoint as well as that of a journalistic craftsman. I went to innumerable trial trips of various kinds, locomotives run by petroleum, boats provided with astonishing brakes, trains equipped with apparatus for sending and receiving telegrams while still in motion. The latter was an invention of Mr. Edison's. It never came to much, I think, but is historically interesting because it involved a larger scheme of wireless telegraphy between ships at sea. My experience in writing up the invention may be worth telling, since it illustrates Mr. Beach's standards. A train on the Staten Island Railroad had been fitted up with Mr. Edison's apparatus and a number of newspaper men were invited to witness its practical working. We left sealed messages for ourselves at the terminal station, and were duly impressed as they came pouring in upon us in the rapidly moving train. I sent a message to Mr. Beach in New York which reached him in proper shape. The apparatus, however was all covered up, and either the electrician in charge was purposely non-communicative or unintelligent,—or else perhaps my own questions were badly put. At any rate, I came home with vivid pictures of the superficial happenings and very vague ideas of the underlying principles. I wrote an article characterized by precisely these qualities, for I felt that I must do the best I could. The article might have done for a non-technical paper, but it was manifestly unsuitable for ours. Mr. Beach sent for me and told me that after reading the article carefully he could not understand how the invention worked. I had to admit that I did not understand it myself, and explained that I had merely done the best I could under the circumstances. Mr. Beach suggested that I would better hunt up Mr. Edison, get a straight story from him, and then re-write my article. I rushed off to Edison's laboratory, then at some place up town, and was so fortunate as to find the great inventor in his office. He kindly explained the whole mechanism to me, and drew the electrical diagrams necessary to make its operation intelligible. This was the only time that I ever saw Mr. Edison, but he impressed me very strongly as a man of great power. There was one feature about his office that struck me as being very odd—he had three or four almost life-size portraits of himself on the walls. I could not quite comprehend how he could lie there on his couch and think, surrounded by these large and not very beautiful images of himself. I hurried back to our own office, got the diagrams straightened out by our regular draughtsman, re-wrote my article in such fashion that Mr. Beach or any one else could read it and understand the invention and had the great satisfaction of publishing the first really intelligible account. The whole thing was a splendid lesson for me. After that, I tried to make Mr. Beach's standards my own, and to be satisfied with no description unless it were so clear that any intelligent reader could go to work and construct the thing described. In drawing up patent specifications

Mr. Beach was equally exacting. There were commonly illustrative diagrams and the principal working parts were lettered. In describing the invention we were allowed to refer to the diagrams and to the letters, but it was required that our description should read smooth and straight, omitting all such references, and still give so clear an account of the device that the reader could go to work and build it. Those who have tried will understand that such a requirement is highly exacting, but it certainly makes for good, clear English. My old chief has now passed on to the undiscovered country. I allow myself to speak of him with so much frankness because my words are all those of a genuine appreciation and gratitude. I look back upon him as one of the best of my many teachers, the kindest when he was the most exacting.

Many other pleasant opportunities came to me while I was on the staff. I sometimes represented the paper at editorial dinners. I visited technical schools and museums. I made a memorable visit to Pittsburg, writing up Natural Gas, the Manufacture of Plate Glass, the Basic Steel Process, and the Davis Island Movable Dam. These articles were all illustrated by our own artist, and tho not signed, their place as leading articles for four successive weeks made me for the moment a very proud young journalist. Marked copies always went to my mother and her pleasure deepened my own. My work on the paper was commonly laid out for me by others, and seldom had a deeper motive than the profit of the owners, but it was so varied and educative that had I planned it all for my own good I could scarcely have done better. In value, it still seems to me quite equal to a graduate course at college. But there came a time when I was quite ready to give it up, not because it had become a squeezed orange and offered no more juice—it never became that, and I never ceased to enjoy the work. Under other circumstances, I might have stopped there indefinitely, become editor-in-chief, and so missed the more wonderful and beautiful experiences that came to me in the later and different chapters of my life. But the truth is, it was an alien atmosphere, and I never felt spiritually at home. Mr. Beach and his associates were kindness itself. My colleagues in harness were friendly and considerate to a degree. But it was not my world and I knew it. For one thing, I disapproved of the advertising matter that went into the reading columns. For another thing, I was frightfully lonely. With a few pleasant exceptions, my fellow workers were not gentlemen, but were mere wage-earners. Hardly a man of them worked for the joy of the work. They were money-getters, servants.

The envelope system was really appropriate. I do not know where the fault lay, with the administration in treating the men like factory hands, or with the men in allowing themselves to be so treated. But certain it is that the result was a deplorable time-service. The office hours, for example, were from nine until five. In summer Mr. Beach,—"the old man," as he was commonly called,—left early, for I think he went out into the country, somewhere on Long Island. Every one knew the precise moment he had gone, for they were on the watch. Then one by one they stole away until it frequently happened that I was almost the only man left when the drowsy official day came to an end. Once Mr. Beach returned, not by design, I think, but solely because he had forgotten something. It was pitiful to see the consternation in the office, to see the men creep back to their desks like so many whipped dogs with their tails between their legs. I may speak of the matter with such frankness, for doubtless in the course of twenty years the personnel has wholly changed. But I fear that even to-day one may see the same degrading, unmanly sight in many other large offices and such factories, if any there be, that try to get along without a time-keeper. Naturally, I could not feel at home in such an atmosphere, for my own up-bringing and ideas were so wholly different. My mother and father were both devoted to me, but they would have fairly scorned me had I left my post one moment before the appointed hour.

I am disposed to think that this experience of mine among the wage-takers was not exceptional. I have since seen precisely the same thing lower down along the line and higher up. I believe that the result of wage-making is in general to make men cowardly and servile. And further, I deplore it for the sake of the employer as well as for the sake of the employed. Like all other forms of slavery, it is quite as bad for the slave holder as for the slave. I should welcome most cordially that greatest of all possible strikes, a strike in which one by one our American workmen declared for self-respect and self-possession, went out once for all from the status of hirelings and entered once for all the manliness of independent or co-operative labor.

As yet these ideas were very vague. But I realized that it did not fit in with my own idea of life to be hired. My life in New York was growing less and less possible, when again the day of fate arrived, and all unconsciously I entered upon my real life work in becoming a teacher. I was personally sorry to part with Mr. Beach, and with one or two of my colleagues, and I think that they were equally sorry to have me go, but all the while my heart was singing, for I was entering upon a larger life and I was going home. C. HANFORD HENDERSON.

Herbart on The Aim of Education

THE EDUCATOR REPRESENTS THE FUTURE MAN IN THE CHILD.

BEFORE an adult can essay to undertake the education of a human being he ought to have formulated in his mind a clear and definite answer to the question, What am I to make of the child? To this the safest and most comprehensive answer is probably this: Make him what he will want to be when he has reached the age of maturity. The educator, as Herbart expresses it, "Must represent the future man in the boy." The aims which the pupil as adult will decide to pursue must be carefully considered. His education must be shaped accordingly. The problem, in other words, is both to foresee the future of the pupil and to equip him for it. This apparently requires of the educator super-human discernment. Education from this point of view seems an impossibility. However, a rational analysis will dispel much of the perplexity which the bare statement of the proposition may cause.

The educator ought not, writes Herbart, "to stunt the activity of the future man; consequently, he ought not to confine it to only a few points, nor should he weaken it by too much diversity. He ought to allow nothing to be lost, as regards either intensity or extension, which his pupil might afterwards demand back from him." Like the master in Christ's parable of the talents, the future man may call his educator to account, and has a right to expect that the treasure entrusted to him shall be returned with interest.

Whatever the future man in the boy may want to be, there is one thing he must not neglect, and that is *morality*, or whatever else we may call the sum of the highest and most essential aims of humanity. All that is included in the term morality, as here used, Herbart therefore calls "necessary aims." The pupil would never pardon the neglect of these.

Conduct in the sense in which Matthew Arnold uses the term and which he says constitutes three-fourths of life, expresses best what Herbart meant by the sum of the "necessary" aims. In "Literature and Dogma" he explains the term thus: "Conduct is the word of common life, morality is the word of philosophical disquisition, righteousness is the word of religion."

Aside from the "necessary" aims there are the merely "possible aims. In the latter class Herbart includes all those aims which the pupil may as future adult take up at one time or other, and pursue to a greater or less extent as he may elect. The problem of preparing the pupil for the efficiency he may desire when his choice is made, Herbart seeks to solve by his epoch-making theory of the development of the many-sidedness of interest.

OSSIAN LANG.

Educational Classics

Respect Individuality

Selections made from Jean Paul's "Levana," by PROF. H. B. RITZ, of the University of Tasmania.

1. Education must search out and respect the individuality of the ideal man.

2. Even the least competent educator admits this, and instils in his pupils this respect for individuality, that is, for his own; but he immediately endeavors to change their individuality into poor copies of his own. Fortunately, he often fails; for mediocrity can impose its own character only on the mediocrity of others.

3. Still, he does admit that he respects a double individuality in man, partly innate, partly acquired. His disregard of the individuality of others is therefore founded on another error besides mere self-love.

4. This error is the pardonable one of confusing the ideal human being with the ideal John, Tom, or Harry. Such a man would have created nothing but angels, or nothing but Adams or Eves. But as there is only one poetic spirit, but a multitude of poetic forms, so there is only one moral ideal appearing now as Socrates, again as John, or as Augustine. Neither the dew-drop, nor the mirror, nor the ocean, reflects the sun in his magnitude, but they all present his shape and brightness.

5. The ego is, with the exception of God, who is both the Original Ego and the original Tu, the highest and at the same time the most incomprehensible idea that language can utter or man conceive. It enters into existence complete, as does the whole realm of truth and consciousness, which is nothing without the Ego; and we must ascribe it to God as well as to the meanest of His creatures, for we cannot imagine an object without attributing it to an existence, an Ego, apart from our own.

Our Ego is a mental individuality, an inward sense of all the senses, just as sensation is the common sense of the four external senses of seeing, hearing, taste (of nose or palate), and touch; it is, moreover, that on which our trust, our liking, and our dislike, must rest. It is that which makes one soul of all our esthetical, moral, and intellectual powers, and, like the energy of light, bestows and determines many-colored visibility, tho itself is invisible, and thus connects us with the world without. In mental individuality we observe the same infinite variety, as in organic and inorganic individuality, which, in an equally incomprehensible manner, is assumed by what we call matter, which appears as plant, as animal, as rock, as liquid, as gas, or as solid.

It is evident that it would be absurd to try to force a Shakespeare, a Kant, a Mozart, a Caesar, and a Raphael into the same intellectual mold. Such an individuality would simply refuse to be coerced.

But a mediocre individuality is not strong enough to resist; and the result is, that it loses its own character and cannot find or form another.

Now, the mental individuality is twofold; one part or aspect of it is intellectual, the other is moral. The intellectual part must be allowed to follow its innate bent; but the moral part must and can be molded and directed.

Within its own domain, the power of the intellect is a beating heart which consolidates and moves the blood brought to it by the veins of experience and instruction. And the more suitable the food, the stronger will the heart become. There is no danger that it may become too strong; a painter cannot become too great a painter, nor a mathematician, too great a mathematician.

The moral power, on the other hand, requires delimitation by means of its own opposite. It was in perhaps unconscious obedience to this need that Frederick the Great played the flute, and Napoleon loved to dream with Ossian.

Every faculty is sacred, because divinely bestowed, and must not be weakened by the educator, but corrected by awakening its counterpart. For instance, a tenderly loving soul must not be hardened, but corrected by developing the sense of justice and honor. A bold mind must not be intimidated, but induced to be loving and prudent.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

ENGLISH COMPOSITION.

1. Define and illustrate periodic sentence, loose sentence.

2. Write to Hardman & Sons, 72 Fifth Avenue, New York, ordering three different books. Give all necessary details.

3. Criticise and correct each of the following: (1) The city was situated on the bank of the river and it was very beautiful, (2) Having climbed to the top of the mountain, a fine panorama lay before us, (3) I saw the boy who was the son of the lady with whom I was staying tiptoe into the library with a volume of Dickens in his hand, (4) He is the man I told you of, (5) Everybody has their own troubles.

4-5. Change the indirect discourse in the following to the direct conversational form with correct paragraphing and punctuation.

An old gentleman in a sharp cocked hat made his way thru the crowd and, planting himself before Van Winkle, demanded in an austere tone what brought him to the election with a gun on his shoulder and a mob at his heels, and whether he meant to breed a riot in the village. Rip, somewhat dismayed, cried out that he was a poor, quiet man, a native of the place and a loyal subject of the king. Here the bystanders shouted that he was a Tory and a spy and that he ought to be hustled away. It was with great difficulty that the man in the cocked hat restored order; and, having assumed a tenfold austerity of brow, demanded again of the unknown culprit why he came there and whom he was seeking. The poor man humbly assured his inquisitor that he meant no harm but merely came there in search of some of his neighbors who used to keep about the tavern.

6. Write a topical outline for a narrative of at least five paragraphs on *one* of the following topics: (1) A Nutting Excursion, (2) A Brave Deed, (3) How I Spent Hallowe'en.

7-8. Write the narrative outlined in answer to question 6.

9-10. Write at least one hundred words describing an old man and a little child sitting by the fire.

ANSWERS.

1. A periodic sentence is one in which the thought is held in suspense until the end of the sentence. Ex. Over the forsaken harvest-fields, silently and softly descends the snow.

A loose sentence is one so constructed that it might be brought to a close at one or more places before the end, and still make complete sense.

Auburn, N. Y., November 8, 1906.

Hardman & Sons,
72 Fifth Avenue, N. Y. City.

Gentlemen: Kindly send by express to my address the following:

1 copy Pilgrim's Progress, Illus.	$2.00
1 copy Rabelais, Ed. by Curtis	2.00
1 copy Little Journey to Norway (paper)	.20
	$4.20

I enclose postal order for amount of the bill.

Very truly yours,
John Grant.

3. (1) The city, which was very beautiful, was situated on the bank of the river. The sentence lacks clearness in respect to the antecedent of *it*. (2) After we had climbed to the top of the mountain, a fine panorama lay before us. The participial phrase is too far removed from the word it modifies. (3) I saw the son of the lady with whom I was staying tiptoe into the library with a volume of Dickens. Strength is violated by the use of superfluous words. (4) He is the man of whom I told you. Avoid ending a sentence with *of, to,* etc. Everybody has his own troubles. A pronoun should agree with its antecedent in number.

4-5. An old gentleman in a sharp, cocked hat, made his way thru the crowd, and planting himself before Van Winkle, demanded in an austere manner: "What brings you to this election with a gun on your shoulder and a mob at your heels? Do you mean to breed a riot in the village?"

Rip, somewhat dismayed, cried out: "I am a poor, quiet man, a native of this place, and a loyal subject of the king." Here the bystanders shouted, "He is a Tory and a spy! Away with him!"

It was with great difficulty that the man in the cocked hat restored order; and, having assumed a tenfold austerity of brow, demanded again of the unknown culprit, "Why do you come here, and whom are you seeking?"

The poor man humbly assured his inquisitor, "I mean no harm, but merely came here in search of some of my neighbors who used to keep about the tavern."

6. A Brave Deed—Outline: (1) Introduction; (2) statement of fact; (3) discussion; (4) summary; (5) conclusion.

7-10. Answers will vary.

CURRENT TOPICS.

1. Name the two leading candidates for the office of Governor in the last State election, and give the result of the election.

2. Discuss the action taken by President Roosevelt in regard to simplified spelling and indicate the nature of the reform.

3. Name the author of either "Coniston" or "The Jungle," and give his purpose in writing the book.

4. Describe the journey made last summer by Secretary Root and give its object.

5. Mention the essential features of *either* the English Education Bill *or* the French Separation Law.

6. Give an account of the recent earthquake in South America; or give an account of the destruction caused recently by a typhoon or a hurricane.

7. Describe the American naval review held early in September.

8. Tell why American intervention was necessary in Cuba. What is the present political condition of the Island?

9. Write a brief account, suitable for publication in a city paper, of some important local occurrence.

10. Write brief biographic notes on *four* of the following: Ellen Terry, Alfred Dreyfus, Elmer Ellsworth Brown, Sir Robert Hart, Joseph G. Cannon, Joseph Chamberlain.

ANSWERS.

1. Chas. E. Hughes; Wm. R. Hearst. Hughes was elected.

2. The President favored the adoption of the reformed spelling of the 300 words, as advocated by the Spelling Reform Committee, and he ordered that all documents from the White House should comply with the new rules. Dropping superfluous letters, as *labor* for *labour*, *thru* for *through*, *wrapt* for *wrapped*.

3. Winston Churchill wrote "Coniston." It shows how the Boston and Maine Railroad controls New Hampshire politically. Upton Sinclair wrote "The Jungle" to expose the filthy condition of the Chicago packing-houses.

4. Secretary Root went to Brazil last July to attend the Pan-American Conference; later he visited the west coast of South America. His object was to bring about a better understanding and closer relations between the South American republics and the United States.

5. All schools maintained by local authority shall be "provided" schools; no public money shall be used in denominational instruction; all schools receiving public money shall give the same religious instruction but attendance on such religious instruction shall not be compulsory.

The State and Church are made entirely distinct by the French Separation Law.

6. Severe earthquake shocks occurred along the coast of Chile last August, causing considerable damage in Valparaiso and the surrounding towns. A typhoon occurred in September at Hong Kong and vicinity.

7. On September 3, President Roosevelt held a review, off Oyster Bay, of forty vessels of the American navy.

8. Owing to political dissensions, President Palma resigned on September 25. The United States took possession to protect the interests of the United States as well as those of other nations and of the Cubans themselves.

9. Answers will vary.

10. Ellen Terry, the veteran actress, was given a benefit performance recently. In July, Albert Dreyfus was acquitted of the crime of treason by the highest court in France. E. E. Brown, the new United States Commissioner of Education, was one of the speakers at the recent University convocation. J. G. Cannon is Speaker of the House of Representatives. Joseph Chamberlain is a noted English political leader and protectionist.

GEOGRAPHY.

1. Name a city in this State situated on a good harbor; one situated at a waterfall; one situated at the junction of two rivers.

2. Name a prominent city in South America having about the same longitude as Boston; a city in Asia having about the same latitude as Havana; a city in Africa having about the same latitude as New Orleans.

3. How will the completion of the Panama Canal affect Great Britain's commerce with the Pacific Coast of America? Why?

4. Name in order of size three great rivers that drain North American territory and state in general terms the territory that each drains.

5. Name and locate five important capitals of Europe.

6. Mention an important export of (1) Cuba, (2) Australia, (3) the Philippines, (4) Alaska, (5) South Africa.

7. Labrador and London have about the same latitude; account for the difference in climate.

8. Name in this State (1) two counties each of which occupies an entire island, (2) two that border on Lake Erie, (3) two whose territory is mountainous, (4) two that have no mountains or large hills, (5) two containing no lakes or streams of considerable size.

9. Name and locate three great wheat-producing regions, each in a different country.

10. What countries are separated by (1) the Ural Mountains, (2) the Kiolen Mountains, (3) the Alps, (4) the Pyrenees, (5) the Andes?

ANSWERS.

1. New York; Cohoes; Binghamton.

2. Santiago; Calcutta; Cairo.

3. It will probably lessen it. Ships now passing around Cape Horn by the usual course are nearer to England than to New York, but on the completion of the Panama Canal the course will be much shorter to the American Atlantic ports. This will tend to divert much of the commerce from Great Britain.

4. Mississippi, draining a great part of the territory between the the Appalachian and the Rocky Mountains, south of the Great Lakes;

McKenzie, draining the greater part of the northwestern British possessions in North America; St. Lawrence, draining the valley of the Great Lakes.

5. London, in the southeastern part of England, on the Thames; Vienna, in the western part of Austro-Hungary, on the Danube; Paris, in the northwestern part of France, on the Seine; St. Petersburg, in the western part of Russia, near the Gulf of Finland; Berlin, in the north central part of the German Empire.

6. (1) Tobacco; (2) gold, wool; (3) hemp; (4) gold, furs; (5) gold, diamonds.

7. The climate of London is made much milder by the warm winds from the Gulf Stream and by the water precipitated on account of it, while Labrador is chilled by the cold arctic currents and the icebergs carried by them.

8. (1) Richmond; (2) Chautauqua and Erie; (3) Essex and Greene; (4) Orleans and Niagara; (5) Cortland and Rockland.

9. (1) Minnesota and adjoining States; (2) southern Russia; (3) southwestern France.

10. (1) Russia and Siberia; (2) Norway and Sweden; (3) Switzerland and Italy; (4) France and Spain; (5) Chile and Argentina.

PHYSICS.

1. Mention and define three properties of matter that depend on cohesion.

2. Mention a practical application of each of three of the mechanical powers.

3. Describe the operation of a siphon. Illustrate by a diagram.

4. Find the volume of a stone that weighs seventy pounds in air and fifty pounds in water.

5. Describe the operation of the hydraulic press and state the law on which its efficiency depends.

6. Compare the scales of the Fahrenheit and Centigrade thermometers as to (1) boiling point, (2) freezing point. Convert —12° C. into the corresponding reading F.

7. Describe an experiment to illustrate the production of sound beats, and explain how the beats are produced.

8. Mention the three kinds of mirrors and show the effect of each on parallel rays of light that fall on it.

9. Describe briefly the construction and explain the operation of some kind of galvanometer.

10. Describe the construction and explain the operation of the arc light.

ANSWERS.

1. Tenacity is that property by virtue of which some bodies resist forces that tend to pull them apart. Malleability is that property by means of which some bodies may be beaten or rolled into thin

sheets. Ductility is that property by means of which some bodies may be drawn into wire.

2. The lever of the first class, with equal arms, forms the common balance. The wheel and axle is used to raise water from a well. The screw is used as a lifting jack.

3. The siphon consists of a bent tube with unequal arms. In order to transfer a liquid from one vessel to another at a lower level, put the short arm in the upper vessel, the siphon being filled with the liquid by suction or otherwise. The upward pressure in each arm is the atmospheric pressure, and the downward pressure is the weight of the column of the liquid in each. The resultant pressure causes the liquid to flow in the direction of the longer arm of the siphon.

(See text-books for diagram.)

4. $70 - 50 = 20$; $20 \div 62\frac{1}{2} = \frac{8}{25}$ or $\frac{8}{25}$ cu. ft.

5. The hydraulic press consists of two cylinders connected by a tube. Two pistons, A and B, pass thru water-tight collars into these cylinders which together with the connecting tube is filled with water. Suppose the area of the pistons A and B be respectively 1 and 100 square inches. If the piston A be pushed down with a force of one pound, the piston B will be raised with a force of 100 pounds. The force is applied to the smaller piston by means of a lever, and the substances to be compressed are placed between a platform attached to the larger piston and a strong frame attached to the press.

Pascal's law—pressure exerted upon any part of an inclosed liquid is transmitted undiminished in all directions. The pressure acts with equal force upon all equal surfaces and at right angles to them.

6. (1) $F. = 212°$; $C. = 100°$; (2) $F. = 32°$; $C. = 0°$; $F. = \frac{9}{5}C + 32° = \frac{9}{5}(-12°) + 32° = 10\frac{2}{5}°$.

7. Take two tuning-forks of the same pitch and load one prong of one of them by pressing upon it near the end a piece of beeswax containing one or two large shot. Cause the fork to vibrate by means of a bow and beats will be produced.

When two sounding bodies of nearly the same pitch are vibrating near each other, the alternate interference and coincidence of the two waves produce effects called beats.

8. Plane, convex, concave. The rays are reflected in each case in accordance with the laws of reflection; in case of plane mirrors the rays remain parallel after reflection, while the convex mirror causes them to diverge and a concave mirror to converge.

9. The tangent galvanometer consists of a very short magnetic needle suspended so as to turn in a horizontal plane. Its point of support is at the center of a vertical coil or hoop of copper wire thru which the current to be measured is passed. The diameter of the coil or hoop is ten or twelve times the length of the needle.

The strength of an electric current is determined by observing the amount of deflection of the magnetic needle when the current is flowing thru the surrounding coil.

10. The arc light is produced by the resistance resulting from sending a current of electricity across a short air gap between the points of two carbon pencils. As the carbons wear away the mechanism of the frame in which they are placed causes them to move forward and keep their points at the same distance apart.

CIVICS.

1. How is each of the following chosen: a judge of the Supreme Court of the United States, the speaker of the Assembly of New York State, a United States senator from this State, a New York State senator?

2. What is (1) a criminal action, (2) a civil action?

3. Mention the chief duties of each of the following: justice of the peace, coroner, surrogate, assessor.

4. What is the right of eminent domain?

5. Mention three important committees in (1) the Assembly, (2) the Senate. How are committees chosen in each House?

6. What officials are members of (1) the Board of County Canvassers, (2) the Board of State Canvassers? Mention the principal duty of each Board.

7. What qualifications are required for membership in the House of Representatives? How are members chosen?

8. Give the essentials of the oath of office taken by New York State officials.

9. State the duties of (1) a grand jury, (2) a trial jury.

10. Define extradition, treaty, ambassador, taxes.

ANSWERS.

1. By the President with the consent of the Senate; by the members of Assembly; by joint session of Senate and Assembly; by the qualified voters of the senate district which he repressents.

2. (1) Criminal action is a suit instituted to secure conviction and punishment for a wrong that has been committed, generally against an individual, but of such a nature that the public peace, dignity, and security are affected.

(2) Civil action is a suit brought by one party against another party for the protection or enforcement of a private right.

3. Justice of Peace presides over Justice's court, issues warrants for the arrest of accused persons, and issues subpoenas for witnesses. He takes acknowledgment of conveyances, administers oaths, and acts as inspector at town meetings.
The coroner investigates all suspicious or accidental deaths with a view to determine their cause.
The surrogate takes proofs of wills, grants letters testamentary or administrative, and attends to the settlements of the estates of deceased persons.
The assessor makes an inventory of the real estate and personal property in the town, and fixes their value so that they may form the basis for taxes.

4. It is the right vested in the Government to take private property for public uses after the payment of a just price.

5. (1) Ways and means, insurance, affairs of cities; (2) finance, judiciary, public education. In the Assembly by the speaker; in

the Senate by the lieutenant-governor or by the President *pro tempore.*

6. (1) County Board of Supervisors; (2) Secretary of State, comptroller, attorney-general, State treasurer, and State engineer and surveyor.

The County Board of Canvassers ascertain from the reports filed with the county clerk by the inspectors of the election districts of the county, who have been elected to county offices and what the vote of the county for State offices and for offices voted for by districts is. Three certificates stating the results are sent; one to the Governor, one to the Secretary of State, and one to the comptroller.

The State Board of Canvassers meets at the Capitol on or before December 15, reviews the county returns, and makes an official announcement of the result.

7. Twenty-five years of age; seven years a citizen of the United States, and when elected, an inhabitant of the State he represents.

He is elected by the qualified voters of the congressional district that he represents.

8. Support the Constitution of the United States and of the State of New York, and faithfully perform the duties of the office to which he is elected or appointed.

9. (1) To inquire into all offenses committed in the county or district since the last meeting of a similar body, and, if they think the evidence against an accused person is sufficient to warrant a trial, to return an indictment or presentment.

(2) To try cases in county and supreme courts and to render a verdict in accordance with the facts proven.

10. Extradition is the delivering up to justice of fugitive criminals by the authorities of one State or country to those of another. A treaty is an agreement or contract between two or more nations defining the rights of the respective nations in regard to trade, commerce, etc. Ambassador is a minister of the highest rank, appointed to represent the interests of a country at the court or seat of government of some other country. Taxes are portions of private property which a government takes for its public purposes.

READING.

1. What is the main purpose of (1) oral reading, (2) silent reading?

2. What are the essential characteristics of supplemental reading for primary grades?

Mark the following sentences for inflection and give reason for each mark used: (*a*) Does the Hudson River rise in New York? (*b*) He is rich but he is not happy. (*c*) Where will I find the book?

4. What kind of selection should be read in slow time? How should errors in time be corrected?

5. Name a familiar selection that requires a high key and one that requires a low key. Account for the difference.

6. What is the purpose of emphasis? Give two methods of emphasis.

(verb), furlough

1. (1) Power to express the

2. Book should be attracti
the child's vocabulary, the su
largely from the child's point of

3. (*a*) Does the Hudson R
ion. (*b*) He is rich but he is r
principal thought is expressed :
Falling inflection to express imp

4. Those containing much
by leading the child to comprehe

5. L'Allegro, high key, on
Gray's Elegy, low key, becaus
controlled.

6. To express thought more
pauses.

7. If he knows something of
more accurately. Ex. "The Vill
blacksmith at work he can read thi

8. Advantage: It leads the t
the thought. Disadvantage: It
a beautiful selection.

9. Con-tract-ed, hal-lu-ci-ná-ti
nis-cence.

10. Kaprēs, rŭf, lēgal, dēzért, f

METHODS AND SC

1. Why should the training of t

2. Show how the method of t
differ

7. Should a teacher as a rule repeat a question to a class? Discuss, giving reasons.

8. "A student of the seventh grade ought to be able to 'read' the information from a map almost as readily as from printed page." Show what is meant by "reading information from a map," and state what information a student should be able to read from an ordinary map.

9. Name three school subjects in which a knowledge of drawing will be of much assistance. Give illustrations to show specific value in any one of these subjects.

10. Mention ten dates in American history that pupils should commit to memory. Give reasons why any three of these are included in your list.

ANSWERS.

1. It furnishes matter for reasoning and judgment.

2. In the primary grade we aim to teach word-getting and the mechanics of reading. In the grammar grade special attention is given to the interpretation and expression of the thought.

There can be no good reading unless the pupil has a good vocabulary and has training in the mechanics of reading.

3. Healthful physical environment; correct presentation of the lesson; interest on the part of the child.

4. Both. The more senses that we train, the stronger the impression made.

5. To develop clearness of perception and a habit of accurate observation in order that the basis for later training may be stronger.

6. Because the principles of government can be emphasized more readily and taught more thoroly from a few examples than from many rules which receive but a confused attention.

7. No. Repeating a question leads to inattention on the part of the class.

8. It means the ability to draw inferences in regard to the various facts of geography; *i. e.*, topography, climate, commerce, etc.

9. Geography, history, reading. Geography requires drawing in order to give clear conceptions of the relative location of natural features, countries, and cities.

10. 1492, discovery of America; 1607, first permanent English settlement; 1620, landing of the Pilgrims; 1776, Declaration of Independence; 1787, adoption of the Constitution; 1812, second war with England; 1847, war with Mexico; 1861, beginning of the Civil War; 1865, close of the Civil War; 1898, war with Spain.

PHYSIOLOGY AND HYGIENE.

1. Give the principal use of (1) saliva, (2) gastric juice, (3) bile, (4) pancreatic juice.

2. Describe the capillaries and state their functions.

3. What poison does tobacco contain? What is the effect of this poison on the nervous system?

4. Give, from a hygienic standpoint, three desirable qualities of clothing.

5. What is (1) a tendon, (2) synovial membrane, (3) cartilage?

6. Name and briefly describe the three main parts of the ear.

7. Name and briefly describe the three divisions of the brain.

8. (*a*) What are adenoids? What trouble results from adenoids? (*b*) Where are the tonsils? What is the effect of enlarged tonsils?

9. Describe both the cold and the hot bath as to (1) use, (2) frequency, (3) hours.

10. Name the classes into which joints are divided and give an illustration of each.

ANSWERS.

1. (1) To moisten the food and digest starch. (2) To digest proteids; (3) To digest fats. (4) To finish the work of digestion that the other agencies have left undone.

2. The capillaries are very minute blood-vessels having exceedingly thin walls. They connect the arteries with the veins, supply the tissues with nourishment, and remove worn-out matter.

3. Nicotin. It produces stomach sickness and great weakness of all the cells of the body, especially those of the heart.

4. Clothing should be light in weight; porous, to give ready escape to the perspiration and a free admission of air to the skin, and should inclose sufficient air to provide against the too rapid escape of the heat of the body.

5. (1) Tendon is an inelastic white cord that connects the muscles with a bone.

(2) Synovial membrane is the membrane lining the movable joints. (3) Cartilage is a solid but flexible substance, forming a part of joints, air passages, etc.

6. Outer, middle, and inner ear. The outer ear collects sound waves which strike against the tympanum. The middle ear contains the three bones called the staple, anvil, and mallet. These bones transmit vibrations to the inner ear, which contains the labyrinth, the cochlea and the semicircular canals.

7. The cerebrum, cerebellum, and medulla. The cerebrum comprises about seven-eighths of the entire weight of the brain, and fills the front and upper part of the skull. It is a mass of white fibers with cells of gray matter on the outside. It is the center of intelligence and thought. The cerebellum, which is the size of a small fist, lies in the back part of the head, below the cerebrum. It is the center for the control of the voluntary muscles.

The medulla is an expansion of the spinal cord, at the base of the skull.

8. (*a*) Adenoids are collections of soft, grape-like bodies growing in the upper part of the pharynx.

They close the opening to the nose and the Eustachian tube, and thus become the cause of mouth breathing and deafness.

(*b*) Tonsils are round bodies situated one on each side of the throat in front of the pharynx. Enlarged tonsils compel mouth-breathing, and cause deafness.

9. (1) The cold bath is a tonic, while the hot bath is cleansing. (2-3) The cold bath may be taken daily on rising, the hot bath should be taken not oftener than twice a week, preferably at night.

10. (1) Movable. Ex. Hinge joint of the elbow and ball and socket joint at the shoulder. (2) Partly movable. Ex. Bones at wrist. (3) Immovable. Ex. Bones of the skull.

SCHOOL LAW.

1. How many members constitute the Board of Regents of the University? How are they elected and for what term?

2. In the apportionment of State school moneys, what is the duty of (1) the Commissioner of Education, (2) the school commissioners?

3. What is the provision in regard to (1) women's voting at a district school meeting, (2) women's holding school office?

4. Give three purposes for which a tax may be levied without a vote of the district.

5. How may a vacancy be filled in the office of (1) trustee of a common school district, (2) member of a board of education in a union free school district?

6. To pupils of what ages are the common schools of this State free?

7. Give the provision of law relative to the construction of suitable out-buildings.

8. In case of a non-compliance with the physiology law, what penalty may be imposed on (1) the teacher, (2) the district?

9. Name three classes of defective children for whom the State provides education and give the location of an institution in which each class is provided for.

10. What is the general provision of the compulsory education law relative to (1) the age of pupils required to attend school (2) the period of attendance?

ANSWERS.

1. Eleven; elected for eleven years by joint session of the State Legislature.

2. (1) He shall set aside the salaries af the school commissioners and the superintendents, and such sums for library purposes as the Legislature shall appropriate. He shall also set aside a contingent fund of not more than $10,000. From the remainder he shall apportion a district quota of $150 to each school district having an assessed valuation of $40,000 or less, and a district quota of $125 to each of the remaining districts and to each city. He shall apportion a teacher's quota of $100 for each additional qualified teacher who shall be employed the legal term.

y expense incurred in ca

provided such expense is appro

Repairs to school-house and

fifty dollars in any one year.

5. (1) If the vacancy is no
one month, the school comm
writing, appoint a competent
annual meeting.

(2) If the vacancy is not su
no special meeting is ordered f
the vacancy may be filled by t
diction.

6. All persons over five and
siding in the district.

7. Trustees shall provide su
schools under their charge, at
entirely separated and have sep
proaches thereto shall be separa
feet in height.

8. (1) Revocation of license;

9. (1) The blind, Batavia, N.
(3) feeble-minded children, Syracu

10. (1) Every child between
proper physical and mental condi
eight and sixteen years of age, not
instruction as many days annuall
the following June, as the public
In cities of the first or the secon
and sixteen who is regularly emp
ing school or receive equivalent
weeks, in case he does not hold
proficiency.

HISTORY AND

4. Tell what Scholasticism accomplished for education.

5. What subjects were prominent in the courses of study of the Humanists? What subjects were neglected in these courses?

6. Give the educational principles of Martin Luther.

7. What contributions to education were made by the Port Royalists?

8. Define Realism and name one of its prominent advocates.

9. Name a famous educator who drew the subject matter of instruction largely from the life activities of the child. Show the possibilities and the limitations of such instruction.

10. Give a brief account of the origin and history of common schools in New York State.

ANSWERS.

1. The Chinese have followed the same educational system for many thousand years, while the French, a highly-developed people, have completely reorganized their school system to meet the needs of a modern civilization.

2. (1) Gymnastics were used among the Athenians to complete the perfect development of the man, (2) while among the Romans they were used to prepare the young man to become a soldier.

3. In that the early Christians emphasized the fatherhood of God and the brotherhood of man.

4. The establishment of universities; the training of teachers who were to promote literature and the arts. To Scholasticism we owe the renaissance of the time of Petrarch and Dante.

5. Latin, Greek, and rhetoric were prominent; history and the natural sciences were neglected.

6. Great attention was given to the study of the vernacular; study was made interesting by study of things rather than words; discipline was mild.

7. They emphasized the training of teachers and promoted the study of things instead of forms.

8. Realism was the emphasizing of (1) objects of every-day life, and (2) experience as opposed to abstract knowledge and to the letter of the classics. It advocated education of the senses, based on perception. Rabelais.

9. Froebel. Possibilities: The senses must furnish the material for all education. Limitations: It is necessary that this material be abstracted and classified by the higher mental faculties.

10. 1784, State Board of Regents incorporated; 1795, first appropriation for support of common schools; 1805, appropriation of income from land grant; 1813, first State superintendent of common schools; 1821, duties of State superintendent transferred to the Secretary of State; 1854, first State superintendent of public instruction; 1867, rate bill abolished; 1904, unification of the State educational systems.

GRAMMAR.

One conclusive reason why, in my judgment, a young man of average ability should take a college course is that he may have an opportunity *to obtain* an insight into the world's culture and the *study* of nature from that comparative and reflective *point* of view that is only possible to *one who* has come to the age at which a college course is usually entered *upon*, and by so doing may lay the basis for an intellectual enjoyment and development that will last thru life, and make *him* a *sharer* in the realities of human achievement and human experience.—NICHOLAS MURRAY BUTLER.

[The first seven questions refer to the above selection. In giving a clause include only its unmodified subject and its unmodified predicate.]

1. Select (1) the principal clause, (2) a substantive or noun clause, (3) three adjective clauses.

2. Give five modifiers of *point* (line 4). Classify each modifier.

3. Define phrase. Select (1) an adjective phrase, (2) an adverbial phrase, (3) a compound phrase.

4. Parse (1) *to obtain* (line 3), (2) *who* (line 5).

5. Select and parse a participle. Parse *one* (line 5), *upon* (line 6).

6. Give the syntax of (1) *study* (line 3), (2) *him* (line 7), (3) *sharer* (line 8).

7. Select five different verbs, exclusive of *is*, two of which are intransitive, one transitive passive, and two transitive active. Give the mode and tense of each verb selected.

8. Write the possessive plural of each of the following nouns: *ox, hero, chimney, fox, leaf.*

9. Write three sentences each containing a subordinate clause connected to the principal clause by a different part of speech. Classify the connectives.

10. Write sentences illustrating five different uses of the infinitive.

ANSWERS.

1. (1) *Reason is,* (2) *he may have* (3) *that is possible; course is entered; that will last,* and *make.*

2. *That,* demonstrative pronoun; *comparative,* adjective; *reflective,* adjective; *of view,* adjective phrase; *that is possible,* adjective clause.

3. A phrase is a group of connected words not containing a subject and a predicate. (1) *Of ability,* (2) thru life, (3) *of achievement and experience.*

4. *To obtain* is a regular, transitive verb; infinitive present; modifies *opportunity. Who* is a relative pronoun, third, singular, nominitive to agree with its antecedent *one.*

5. *Doing* is a participle from the irregular, transitive verb *do.* Principal parts—*do, doing, did, done.* It is in the present, active, and is used as the object of *by. One* is an indefinite pronoun, common gender, singular number, objective case, object of *make. Upon* is an adverb of manner, modifies *entered.*

6. (1) Object of *into*; (2) direct object of. *make*; (3) predicate object of *make.*

7. *Has come,* indicative perfect; *will last,* indicative, future; *is entered,* indicative, present; *should take,* potential, past; *he may have,* potential, present;

8. *Oxen's, heroes', chimneys', foxes', leaves'.*

9. Here is the book *that* you wish, relative pronoun; I shall go *if* he does, conjunction; I saw him *when* he was here, conjunctive adverb.

10. *To do good* is the duty of all (subject); The rumor was *that the enemy was defeated* (predicate nominative); Some one reported *that the enemy had retreated* (object); It is true *that the enemy have retreated* (appositve); There is some dispute about *who wrote the book* (object of preposition).

AMERICAN HISTORY.

1. Did the Puritans of Massachusetts grant freedom of worship? Give at least two historical facts to prove your answer.

2. Account for the fact that wealth was more equally distributed in the New England colonies than in the Southern colonies.

3. Name and locate five important places captured by the English during the French and Indian war.

4. Briefly describe the resistance of the colonists to the Stamp Act. What measure for taxing the colonists did Parliament enact on repealing the Stamp Act?

5. Give three reasons for the adoption of the Constitution of the United States, as specified in its preamble.

6. With what is each of the following names closely associated: Gen. Sam Houston, Harriet Beecher Stowe, Elias Howe, Marcus Whitman, Cyrus W. Field?

7. Give a brief account of the capture of Washington by the British in the war of 1812; of the attempt to capture New Orleans.

8. What is the cotton gin? What effect did it have on the cotton industry and on slavery?

9. Mention an important event of the Civil War connected with each of the following names: Sherman, Sheridan, Thomas, Meade, Farragut.

the Quakers.

2. It was due partly to
onists and partly to differen
New England colonists were
and were of moderate means,
mainly by the wealthy aristo
The environment of the New
commerce, while that of the
extensive scale.

3. Duquesne, at the juncti
hela; Louisburg, in Nova Sc
on Lake Champlain; Quebec, in

4. The colonists refused to u
every way possible. The Town
on tea, glass, etc.

5. To form a more perfect U
tic tranquility, etc.

6. Houston, independence o
"Uncle Tom's Cabin"; Howe,
Whitman, saving Oregon for th
of the first Atlantic cable.

7. Washington was captured
27, 1814.

The British, under General
of New Orleans but were hopel
January 8, 1815.

8. A machine for

RECENT BOOKS FOR TEACHERS

Mary Kingwood's School

By CORINNE JOHNSON **Price $1.00**

[illegible]

Hints and Helps from Many School-rooms

Arranged by E. S. [illegible], Editor of "Our Times"

Price $1.00

Carefully selected ideas and suggestions [illegible] school-room work.

Little Talks on School Management

By RANDALL N. SAUNDERS **Price 50 Cents**

[illegible]

Composition in the Elementary School

By JOSEPH S. TAYLOR, District Sup't N. Y. City Schools

Price $1.00

A thorough discussion of the theory of composition [illegible] ever published.

A. S. BARNES & COMPANY, New York

Just Published

ESPERANTO
IN TWENTY LESSONS

By [illegible]

With vocabulary [illegible] Cloth
Price, [illegible] cents By mail, [illegible] cents

Esperanto, the universal language is spreading over our country like wild fire. It is so simple that when properly explained it can be mastered in a few weeks.

No preliminary study necessary to fully understand this easy and interesting course.

A. S. BARNES & COMPANY, NEW YORK

Educational Foundations

MAY
1907

DEPARTMENT OF
EDUCATION
LIBRARY

APR 22 1907

LELAND STANFORD
JUNIOR UNIVERSITY

VOL. XVIII
NO. 9

DEPARTMENT OF
EDUCATION

AUG 8 - 1907

LELAND STANFORD
JUNIOR UNIVERSITY.

$1.25 a Year, 15 Cents a Copy

PUBLISHED MONTHLY BY A. S. BARNES & COMPANY
ELIZABETH, N. J. [illegible] NEW YORK CITY
[illegible]

The English Language. [illegible]

English Poetry for Children from Six to Ten

Correlation; Co-ordination; Concentration.
Joseph S. Taylor - - - - -

A Year's Work in Old World History. Oliv
Jones - -

The Autobiography of a Teacher. C. Han
Henderson - - -

EDUCATIONAL CLASSICS

Extracts from Horace Mann's Writings

SYSTEMS OF PUBLIC EDUCATIO

Educational Progress in Denmark. J. S. Thorn

PEDAGOGICAL DISCUSSION

Poetry as an Atmosphere, a Discipline, and
Study. P. A. Barnett - - - -

TEACHERS' EXAMINATIONS

EDUCATIONAL FOUNDATIONS.

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII MAY, 1907 No. 9

Electives and Fundamentals

IF courses of study were properly organized there would be no cause for the frequent complaints that they are overcrowded. The remarkable researches made by Dr. J. M. Rice revealed an astonishing amount of waste in the subjects commonly called "essentials." The same method of investigation carried into the culture studies would no doubt show up an even larger volume of waste.

Wholly aside from these practical matters, our school programs have not even been conformed to the primary theoretical standards. Pedagogy is commonly treated as something apart from actual school work. It seems as if most candidates for positions simply acquired sufficient speaking knowledge about pedagogy to help them pass the required examinations, after which they see no further use for the study of the history and philosophy of education. Comparatively few "permanent" teachers pursue the study of their profession seriously in its fundamental aspects. It is not difficult, therefore, to account for the frequent shifting of opinions concerning courses of study. The wonder is that anything is able to maintain itself.

We are, as a people, endowed with a large amount of common sense, and it is this, and not pedagogy, that has saved us from being constantly groping in a chaos of conflicting opinions. A few points are settled. The three R's, for instance, cannot be disregarded. Unfortunately, common sense cannot settle all points. Expert technical experience is needed to build on where the common experience of the man in the street ends.

Now as to how far the question of electives may be trusted to common sense, I am not prepared to say. This much is certain, that election entails much waste of time and energy, if left to the pupils. Teachers should no doubt be given a certain amount of discretion in encouraging pupils to devote greater or less effort to one or the other study. The course of study, after all, is a generalization of what is considered best for the pupils to have. Its rational application demands proper individualization by the teacher to the peculiar needs of his pupils.

As a general rule, it may be maintained that there should be no electives below the high school, tho the choice of extra subjects outside of the regular school course may be permitted. But even in the choice of these extra subjects the sanction of the teacher and the endorsement of the principal of the school should be obtained.

The chief danger of election in the high schools is that the teachers of the schools are by training, experience, and predilection inclined to scholarship, rather than to all-around culture. Being usually specialists, it is natural that they should see in their own individual specialties the great avenues to human welfare, thereby strengthening the pupil in the wisdom of his immature choice, rather than impressing him with the danger of premature specialization.

In the high school no pupil should be excused from any of the studies considered necessary for his proper educational development. If the pupil desires to specialize he should find his chosen specialty to be surrounded with obligatory studies establishing the proper balance. Looseness of election is a crime. It is like letting babes play with matches and guns that are not loaded.

There are fundamentals concerning which there can be no difference of opinion. They should not be left open to the choice of an immature and inexperienced mind. If there may be a choice between two subjects of practically equal educational value, it is still advisable that a trained educator acquainted with the individual needs of his pupils should influence, if not determine that choice.

With the June number the eighteenth year of EDUCATIONAL FOUNDATIONS comes to a close. The plans for the new volume are well under way. Before making final announcements the editor desires very much to hear the wishes of subscribers as to how to improve the general helpfulness of the magazine. Every suggestion will be welcomed. A postal card will do. Please write. Address communications to the editor of EDUCATIONAL FOUNDATIONS, 11 East Twenty-fourth Street, New York, N. Y.

The Course of Study

The English Language

Methods of Instruction

OBJECTIONS TO "METHODS."

THE term "method" as applied to teaching has fallen into a certain disrepute, perhaps not altogether undeserved. The cause of this fall is doubtless the character of the instruction in "methods" too often given to teachers in meetings for instruction, as well as to prospective teachers in normal schools. Instruction has been too much in devices and too little in principles, so that teachers have gone about their work with a cock-sureness (or hen-sureness) that this or that particular device is "the only way—it is *the* method." The utter failure to discriminate in application, and the slavish following of the letter of the law have cast discredit over all teaching of method. This influence of the badly taught or insufficiently taught teacher, clinging desperately to his little "method" has been unhappily increased by the loud advocate of the educational nostrum in the form of a "revolutionary" method, "the discovery of the ape," "founded upon the only sound philosophy," and settling for all time the question of how to do this thing. These nostrums, whatever their form, whether the teaching of reading to all children by a "phonic system," or arithmetic by the "Grube system," or history by the "topic method," or geography by the "rain storm method," are alike vicious in that they exalt mere devices, useful tho they may be, as devices, into principles. They make a Bible of a proverb, and hence cause mental strabismus and loss of perspective, belittle teaching and destroy the teacher's power of initiative. In view of the prevalence of these perverted views, is it surprising that the term "Methods of Teaching" is to many one of approbrium? Fortunately for sanity of teaching there is a better view of method.

A BEST WAY.

Necessarily there is a best way of doing everything that is to be done, but not a universally best way. The best way for me may not be the best way for you, and the best way for me to-day or with Johnny Jones may not be the best way to-morrow or with Maggie Brown.

While this is true of "devices" and of specific "methods," it is equally true that there are principles underlying all methods that may not be violated with impunity. Variation is possible in the application, not in the principle: Hence the instructor in methods of teaching should seek to find the underlying principles and to teach these. Devices and other applications should be merely suggested or should be left entirely to the originality of the teachers.

PURPOSE THE BASIS.

Naturally, the first thing to consider in determining the method of teaching any subject is the purpose of teaching that subject. What is the aim? That, settled, determines the standard by which all methods may be measured.

The next considerations are the nature of the subject—its meaning and its logic,—and the laws of growth of the minds of the individual learners, especially as related to the subject under consideration. That is, how can William Jones best attain the end aimed at thru the study of language, considering the nature of the subject, and William's mental state regarding language?

PSYCHOLOGY VS. LOGIC.

Here we come upon the old contest between psychology and logic, as to which shall determine the method of teaching a subject. Shall subjects be presented by rule and definition in a logical order, or shall they be allowed to present themselves as occasion offers, according to the present mental state, the existing or potential interest, of the learner. Shall nature study be for observation, discovery, and conclusions or shall it be the verification of the established classifications of science?

I once heard a schoolman say while we were watching a class of children studying beetles, "To begin the study of the beetle at the wrong end (referring to the rear end) is a pedagogical crime." So the question in reading, in arithmetic, in language, is, Shall the child observe the beetle, beginning at the head and proceeding in an orderly manner, or shall he observe whichever end the boy chances to present first?

Of course, there is but one answer to the question. The child must learn as he can. Any attempt to force or to change the processes of his mental action results in waste or failure or disaster. Formal logic at best calls for but an inferior order of thinking, the placing of ideas in classes already formed. The real thinking is in making the generalization, forming the classes. Bacon and Newton, Fulton and Edison, and not the medieval theologian, represent the thinkers of the world and their methods shown by the methods of the school.

MUST VARY WITH AGE.

Naturally, however, method must vary as children advance in age and in mental power. "Nature study" progresses toward science, "number work" toward arithmetic, and "language study" toward grammar and rhetoric. The casual observation becomes orderly, the unconsidered expression becomes definite. But never should it sink to the level of mere formal logic. Truth should always be approached thru observation, discovery, and generalization. It must first be obtained from facts, that afterward facts may be referred to it for verification. Nature has not instructed the young wrongly, as is evidenced by the marvelous growth during the first unschooled years, as compared with that after the infant begins to go to school.

ORDER OF NATURE.

What is the natural order of learning? First, casual observation; second, interest; third, study; fourth, expression; fifth, comparison; sixth, expression; seventh, generalization; eighth, expression; ninth, more comparison and verification;

tenth, expression. The old method begins at the ninth step. The place of expression in thinking is of the highest importance. No expression, no thinking.

This brings us directly to our subject, Language Instruction, —how should it be given? The purpose of the language lesson was stated fully in the last number of this series. Briefly, it is to secure to the children facility, accuracy, force, and elegance of expression in oral speech and in writing, and discriminating taste as to literature, the ability and the tendency to read good books with intelligent appreciation. With this end in view how shall we approach the subject? We will consider at this time the so-called "language lesson." The consideration of formal grammar will be postponed for a future article.

HOW DO CHILDREN LEARN?

How does a child naturally learn to use language? At first altogether, and always chiefly, by sheer imitation. There is no other way for him. Vocabulary is a matter of memory. The art of language consists in using the remembered vocabulary in artistic and effective combinations, and such combinations are for the most part imitations. Only at rare intervals is an original form of expression produced. However, in teaching language the two inseparable elements are the language of others—conversation and literature—to supply vocabulary and model forms in great variety, and much practice in the use of language to reduce conscious imitation to unconscious imitation or habit, to make the vocabulary learned a permanent possession thru use, and to give facility and personal character style to the form of expression employed.

Coincidentally with observation and expression, and as a further aid in the acquirement of language power and art in expression, comes a knowledge of certain fixed conventions, of general acceptance, governing the details of communication by means of language. These are the "rules" of grammar and of rhetoric.

In the earlier stages of a child's learning a language rules cut no figure. With advancing maturity and logical power they become increasingly important as clinching and putting into convenient and condensed form the principles and language customs that have already been demonstrated and imitated by the learner. Only when they record experience are these rules of great value—a fact that bears directly on the method of teaching.

MODELS ESSENTIAL.

The first essentials then in teaching language to children are good models to imitate and good thought to express, with the desire to express it.

Before a child comes to school, his models are chiefly the oral speech of family and playmates. In some cases to these have been added stories told to the children and learned by them, which have greatly enlarged the vocabulary. However, it follows that among the members of any class entering school there are wide differences of vocabulary, both in extent and character. During the first two or three years of the school life the teaching of language is mainly incidental, and, perhaps for this very reason, especially effective. The sources of new vocabulary are vast, all the new subjects of the school course and the conversation of teachers and fellow pupils about these subjects,—nature study, number, writing, and especially reading, thru which the children receive their conscious introduction to the vocabulary and style of literature. Then the modern primary school offers and encourages an abundance of oral expression on many subjects, and this expression is free, with the mind fixed on the thought, and on the expression merely as to its adequacy, unvexed by the disturbing suggestion that "language" is being studied and unhampered by fear of correction.

Such experiences develop language power amazingly so as often to give rise to questions as to the reason. We are apt to forget that power in language, as in all else, is a by-product.

DECLINE IN LANGUAGE POWER.

In the third or fourth grade, usually, the formal language lesson is introduced, commonly with a book. Then too often begins the decline. Language power seems to be palsied. In spite of liberal doses of grammar, both raw and pre-digested, free and effective speech gradually disappears from the schoolroom, being relegated to the home, the playground, and the street, where freedom is not always tempered with continence, nor adorned with art. Why is it? Let me risk wearying the reader with a brief criticism of the usual formal language lesson, drawn from the average language book.

BAD LESSONS.

First comes a definition, usually badly expressed, and often incorrect, in a vain attempt to make plain to children what is beyond them by writing it in bad English—a very common error from "baby talk" to grammar. For example—taken from a popular book—"A tongue sound used to indicate an object or an idea is called a word,"—a false and foolish definition. Or this, from the same book,—"mental pictures are *for short* (sic) called ideas,"—a definition which comes perilously near the idiotic. Yet these are found in one of the better books. I instance them merely as typical of bad method. Of what use is such a definition when learned? It is mere attic waste. Children should be expressing *ideas* in *words*, not trying to define either.

The words having been committed to memory, then comes a copying exercise "to fix them." Then follows an exercise in filling blanks, as (from one book) "The——song is sweeter than the——"; as (from another book) "A pin——a head but——no hair." Even worse than these are the formal grammar lessons in primary grades. Thought, freedom, fluency, appropriateness, those characteristics of untrammeled expression, are all absurd. Language has become a mere task,—to "illustrate" something, to explain a rule or a definition. Hence it is no wonder that power is lost, for power comes only thru use, and power in language is the result of the effective expression of thought.

TEACHING THINKING.

Teaching language is teaching thinking, for thinking is organizing ideas and indicating their relations. The necessary order of instruction is somewhat as follows; First, the presentation of good models. Second, stimulating thought which demands expression. Third, clarifying and organizing the thought. Fourth, securing free and abundant expression which, largely unconsciously, follows the models in vocabulary and style. Fifth, giving such definite instruction in regard to the conventions of speech,—the rules of grammar and of rhetoric—as will enable the learner to judge of the correctness of his expression, putting his practical knowledge, his observed facts, into technical form convenient for memorizing. The value of such statements of principles, with young children very slight indeed, increases with advancing age and power; but at any age the method of teaching them should be inductive, and never merely bald statement. Let us briefly consider these five essentials of method.

MODELS.

First. The models that the teacher can use are his own speech and that of the other pupils in school in so far as he can control it, and good literature. It is difficult and frequently impossible even with the utmost effort, to correct in school the bad habits of speech acquired outside, but much can be accomplished by constant watchfulness, and by insisting that all recitations be lessons in good English. All lessons are language lessons. It is by expressing correctly not merely some thoughts, but all thoughts that good habits are formed.

CAUTION.

A caution is, however, needed here. Language is used in expressing thought. In our eagerness to secure correct expression we must not ignore the thought. Fluent and clear thinking must precede fluent and clear expression. I have known teachers so to hector and interrupt children with continual corrections as to stop the thinking and hence cut off the means of instruction. The correction, if needed, should not break into the current of thought, but should come after the statement is completed. But the model should be so used as to give good form whenever possible, in advance of the expression, tho unconsciously. For this purpose naturally literature must in the main constitute the models, and it must be interesting literature. It is not enough to give children disconnected sentences illustrating a "point," or to require them to repeat correct forms many times. Mere forced reiteration does not produce habit. There must be interest in the thing repeated, to give effect to the repetition. An interesting story in which the form that it is desired to teach occurs repeatedly is vastly more effective in impressing the forms than the mere recital of the forms themselves an indefinite number of times. The child who first listens wide-eyed to the story of the "Three Goats' Bruit," and then tells it, using repeatedly, as he will, the form "It is I," builds a barrier against "It is *me*," many times more effective than if he were to recite or to write, "It is I," without a connection in interest, a hundred times. As good literature is the source of all our rules of correct speech, the child should be allowed to drink repeatedly at the fountain itself. Literature should be the basis of all language instruction, good literature, poetry and prose, suited to the mental state of the children. It should not be used slavishly nor prostituted to the mere study of form, but the children should be introduced to it as a friend that can serve them both as inspiration and model.

MATERIAL FOR THOUGHT.

Second. The language lesson should present to the children a large amount of appropriate thought—compelling material of such a nature that they will be moved to think and desire to express their thoughts. Making sentences, filling blanks, "illustrating points" will never accomplish the end aimed at. The subject matter must appeal to the children as of consequence. The larger interest in the thought will carry the smaller interest in the form. The material that should be drawn upon for the language lesson includes the best in the child's world and the most natural; his home life, his games and occupations, his school life, especially the content subjects of his daily work, literature, history, nature. These are natural and valuable subjects for expression, upon which children can easily be induced to express themselves freely, if not too much hampered by fear of interrupting corrections.

Whenever available, model passages, drawn from literature and illustrating the correct use of the forms that must be employed, should be studied in connection with the free expression, preferably beforehand, to lay a metaphysical foundation, and to suggest vocabulary and style.

The first expression should usually be oral. It is easier to correct and it is of more consequence to the average person. When the written form follows, the model may frequently be used as a basis of comparison and correction.

CONTINUED DISCOURSE.

Excepting occasionally and for very specific purposes, the language expression should be in full and continuous discourse and not in mere illustrative sentences, that is, it should be natural, like expression when not in the language class.

CAUTION.

A caution is needed here. The *written reproduction* of literature, excepting very rarely for the sake of impressing some specific form, is vicious, and its most vicious phase is the paraphrasing of forms.

CLEAR THINKING.

Third. Before thought can be effectively *expressed*, it must be clearly *thought*. Teachers sometimes wonder at their failure to secure good English expression and pound away on the forms and the rules and definition, or even encourage much talking, without securing the desired results, because they have ignored the essential thing, the thought itself. In many instances much time must be given to clarifying and organizing thought before good expression is possible. The sentence and the paragraph are the elementary bases of the expression of organized thought,—the sentence of the single unrelated thought and the paragraph of the group of closely related thoughts. Hence in the earlier stages, and indeed in all stages of language instruction, much attention should be given to thinking necessary to clear cut sentences and paragraphs.

This does not mean that these forms need to be defined early, but that they must be correctly used early. The definitions may well wait until the metaphysical notions involved in them are comprehensible to the children. A correct definition of a sentence is comprehensible only to the mature mind possessed of very considerable knowledge. The child does not wait until he can define "apple" before he calls it by name, recognizes it whenever it appears, and makes appropriate use of it. So, such a practical knowledge of sentence and paragraph as is involved in clear thinking and expression should be given the children long before they are qualified to define the terms. They should first observe them in literature, many of them, and should see how and for what they are used, and should then write their own thoughts, using these forms. It is well at first to make separate "stories" of individual paragraphs, even giving titles to them. And this organization of thought thru expression should continue so long as language is formally taught.

NEED OF PROGRESSION.

Naturally with growing power it becomes more and more systematic and logical. One of the serious defects of the ordinary language book is the lack of progressiveness. The last part is on the same plane of difficulty as the first. The only progress clearly sought for is in the knowledge of the merely mechanical or technical requirements of written composition. The power to think clearly and to organize thought is not developed. And yet this is the most important function of the language lesson.

From the paragraph easy steps should lead to the larger unit, the whole discourse. First should be the study of the literary model, the analysis and representation in outline of the thought of some selection readily grasped by the pupil. After considerable practice in this exercise the construction of a story from an outline given follows naturally. Then comes the making of original outlines and writing the story or other literary form from them. With the younger children it is well to make the first studies in co-operation with the teacher, upon the blackboard. Later, individual productions should be made.

DEVICES.

Many devices might be mentioned as helpful in clarifying thought. The observation of nature and the making of notes from time to time, followed by a careful co-ordination and arrangement of parts, and finally a full written account of what was observed is an excellent exercise. Another is the collection by the class in co-operation, of facts about some topic in geography or history or literature, combining these into a series of carefully edited chapters, making a co-operative book.

MOTOR ACTIVITIES.

One of the very best means available to all for clarifying thought is thru some form of manual expression utilizing the motor activities. This truth is universally recognized in schools for the feeble-minded, where the main reliance for awakening dormant minds is the employment of the motor activities. It is also especially valuable with foreigners, to whom frequently the thing made by hand gives the first dawning of comprehension. Modeling in clay, picturing with pencil or brush, representing by cutting from paper with scissors, making with carpenter's tools, so clarify impression that clear expression follows readily. When a child has made a thing he knows it. When he knows it thoroly he can usually express it clearly. The so-called "sand table," a long table on which may be represented in various media continued stories, or entire historical and geographical scenes, has cleared the minds and loosened the tongues of hundreds of children. I have seen little third grade children of foreign parentage stand about a table on which was pictured the story of Joseph in episodes, and recite one at a time the details of the story in good English that was fairly startling, telling long continued stories without a break.

There are many other devices, but it is not my purpose to treat of devices. Those I have given are merely typical and suggestive of the necessity of developing good thinking thru the language lesson.

FREE EXPRESSION.

Fourth. The ways of securing abundant free expression have already been indicated. When interest has been aroused and a desire for expression created, let the expression come. Guide it. See that it is profitable, but do not check it. The art is never learned but by use. The flow should be directed into the proper channel, but if there is no flow, of what use is the channel? In all grades much oral speech should be encouraged, both because of its own supreme importance and as a preparation for the written work.

RULES.

Fifth. Instruction in the laws of grammar and rhetoric can be given as needed, after free expression has been secured and after some literary interest and appreciation have been developed, not before. Thruout the elementary grades such instruction should be given only as it is of manifest service in expressing thought or in appreciating thought as expressed by others. It should be incidental, not, however, accidental.

The instruction should be systematic and thoro. It should include all the mechanical rules of correct form, as punctuation, the use of capitals, the correct use of many forms, regular and irregular, often misused, the meaning of words and especially the conventional forms of letter-writing. To the average citizen letter-writing is the only literary form that is at all practical. Most people use no other. Hence it should be very carefully and well taught, not in a few lessons "bunched" in a language book merely, but continually by practice and instruction. The instruction should include not merely the correct forms of opening, closing, and the like, but should suggest what to say in various kinds of letters.

Instruction in formal grammar may well be postponed to the higher grammar grades or the high school, tho it does no harm for children in intermediate grades to know the names of the parts of speech and the subject and predicate of the sentence. But thru all the earlier years of school life the art of language is of vastly greater importance than the science.

INDUCTIVE TEACHING.

Whatever principles are taught, whether rhetorical or grammatical, should be taught inductively. They should be drawn by observation and questioning from literature and when thoroly digested should be stated by the children themselves. Later their statements may be compared with those of the book for critical purposes. It is the mental condition that should be first in mind. The bald statement should never be given first. Use the literary models as the sources of information and by study derive from them the principles on which they are constructed.

SUMMARY.

By the employment of good models of oral speech and literary composition, by stimulating thought demanding expression, by training to lucid and logical thinking as the basis of lucid and logical expression, by securing abundant and free expression both oral and written, and by teaching inductively the necessary principles and laws of correct expression, it is possible to secure for most children the inestimable power, fluently, clearly, effectively, and elegantly to express their thoughts.

In the next article I shall discuss the teaching of grammar.

Western Reserve University. C. B. GILBERT.

English Poetry for Children from Six to Ten *

THERE are, I suppose, two main difficulties with regard to the teaching of poetry to quite young children—that is, between the ages of six and ten. The first, to find suitable verse, which shall yet not be trashy or mere nursery-rhyme; the second, having found the wherewithal, to do anything with it that is really valuable beyond simply learning it by heart. With respect to both these points some help is furnished by making, and keeping, ourselves perfectly clear as to what we want the children to get out of it all. From six to seven, surely little more than that they should *like* poetry. Even after nursery age this must still remain a chief aim; but here it is the only one. Now it may at first sight seem obvious that, in order to like it, they must understand it. I do not know, I do not think, that, as a principle, that is ever wholly true. But, in any case, for the period of child life of which we are talking, it is necessary to distinguish. With regard to real *poetry*—and to this, as I think, we can well introduce a child of eight or nine—it is by no means necessary, or even desirable, that all of it should be within the compass of his intellect; suffice it that it be within the compass of his feeling. But the babyish songs and verses which we give to the out-and-out nursery child stand on a different footing. Not only must they be absolutely and *immediately* intelligible, but they must in thought look at things from the children's standpoint, and in expression say things in the children's language. "When I was a child, I spake as a child, I understood as a child, I thought as a child."

---

* A paper by the Principal of St. Mary's Hall, Liverpool, read at a Conference of English Teachers, and published in the London *Journal of Education*.

At the same time, even this earliest verse should be good of its kind; it must not be mere doggerel. And it should, of course, deal with the things of the children's environment, with the facts of their experience. In the flood of literature which now inundates our infant schools, some of the old books of one's childhood, containing perfectly simple, yet quaint and charming, verse, seem to have disappeared. Memory looks back to one such favorite in my own nursery, handed down from a former generation, which contained, amongst other things, a version of "The Babes in the Wood" far superior to any of its successors. It opened thus:

My dears, you must know that a long time ago
There were two little children whose names I don't know;
They were stolen away on a bright summer's day,
And lost in the wood, as I've heard folks say.
  Poor Babes in the Wood, poor Babes in the Wood!
  Don't you remember the Babes in the Wood?

There was also a small volume of verse by Mrs. Alexander, which, despite the rather unpromising title of "Moral Songs," had—as indeed the name of the author would sufficiently guarantee—some very delightful poems. Take these lines from "Father's Return":

Beasts have lain down where the bright dewdrops glisten,
  Birds have gone home to their nests long ago;
Only the bat brushes by as I listen,
  Or the stag-beetle hums drowsy and slow.

Or, again, these, put into the mouth of a little elder sister watching the sleeping baby:

In the still room there's no sound to disquiet,
  Only the clock ticking even and low;
Only the bird in his cage hanging by it,
  Chirping a note as he hops to and fro;

Out in the sunlight the woodbine is stirring,
  Filling the air with its fragrance so sweet;
On the low window-seat pussy sits purring,
  Washing her face with her little white feet.

That is pretty verse, quite worth committing to memory and keeping there, and it is also just the sort of description we want poetry at this stage to embody—a picture made by definite details familiar in the child-world of fact or fancy. Yet both thought and form are perfectly simple and straightforward.

As another example of poetry which strikes, I think, exactly the right note for this period, let me quote a few verses from the first of the late Miss Ingelow's "Songs of Seven," well named "Exultation"; for the "clear, keen joyance" of the little child pulses thru it from end to end:

There's no dew left on the daisies and clover,
  There's no rain left in heaven,
I've said my seven times over and over,
  Seven times one are seven.

I am old, so old I can write a letter;
  My birthday lessons are done.
The lambs play always, they know no better—
  They are only one times one.

O velvet bee, you're a dusty fellow,
  You've powdered your legs with gold.
O brave marsh mary-buds, bright and yellow,
  Give me your money to hold.

And show me the nest with the young one's in it;
  I will not steal them away;
I am old—you may trust me, linnet, linnet,
  I am seven times one to-day.

But, I suppose, few of us would hesitate to give the palm in this matter to Robert Louis Stevenson's "Garden of Verses," a book as fascinating to those who, like its author, have kept undimmed, unspoiled, the scenes and plays and thoughts and fancies of "the bright fireside nursery clime" as to the lucky children for whom it is meant.

Every rightly constituted town child will delight in "The Lamplighter"; for that personage exercises a universal attraction: every country child be pleased

to go up in a swing,
Up in the air so blue. . . .
Up in the air and over the wall,
  Till I can see so wide—
Rivers and trees and cattle and all,
  Over the countryside;

and most children, we hope, still delight enough in that make-believe which, as Stevenson says, is "the gist of child-life," to enter fully into the charming "Land of Story Books," with its touch of half wonder, half pity, for the elders who

sit at home and talk and sing,
And do not play at anything.

There is, moreover, in much of his simplest verse a movement, a swing, of music that carries the children along with it; even those whose imagination does not hear in the wind the gallop of the invisible horseman, will say his "Windy Nights" with feeling, and, it may be, awake imagination in the saying:

Whenever the moon and stars are set,
  Whenever the wind is high,
All night long, in the dark and wet,
  A man goes riding by.
Late in the night, when the fires are out
Why does he gallop and gallop about?

Whenever the trees are crying aloud,
  And ships are tossed at sea,
By on the highway, low and loud,
  By at the gallop goes he.
By at the gallop he goes, and then
By he comes back at the gallop again.

When, at the age of eight or nine, we introduce children to a higher order of verse and an aim at least mildly and distantly literary, the same broad principle of appealing to what they *like* will guide our choice. And there is much in poetry that the general run of unspoiled children—spoiled, I mean, by never having been allowed free out-of-school contact with the masters of our literature—will infallibly like. Much that their *ear* likes first—the mere swing of spirited meter of which we have just spoken, the pleasant medial rhyme, the recurring phrase, the ballad-burden or refrain. May I be allowed another personal reminiscence? I well remember the delight which I and two martial sisters took in Macaulay's "Lay of Horatius," and how its half-dramatized recitation for the benefit of the nurses filled happy afternoons when lessons were done. That delight was compounded, it is true. of many elements, of which more in a moment; but I know that one never failing joy was the slightly varied echo with which we younger ones answered the appeal of our eldest standing valiant on her bridge of chairs

> Now who will stand on either hand
> And keep the bridge with me?

And then one leapt up beside her with:

> Lo, I stand at thy right hand
> And keep the bridge with thee!

myself following as "strong Herminius" with:

> I will abide on thy left side
> And keep the bridge with thee.

I feel the old pulse in my blood as I write. So, too, any normal child feels the rhythmic rise and fall of heavy seas given by the long syllabled medial rhyme—

> As they sweep thru the deep

in "Ye Mariners of England!" *Feels* it, mind—for this, I take it, is the first thing—the foundation thing, also, wherein knowledge and understanding will later take fruitful hold.

Part—tho by no means the whole—of the charm which my young pupils invariably find in Kingsley's ballad of "Lorraine Loree" undoubtedly consists in this sort of appeal made to the ear, the sustained rhyme in *ee*, the familiar phrases recurring yet "with a difference," and the soft musical sound of the name itself.

Secondly, there is an inner eye as well as an outer ear, and to this, too, much poetry easily *speaks*. All healthy-minded children love bright color, and the glowing tints of Macaulay's pictures are another feature which generally commends him to the young—the Tuscan army, for example,

> flashing back the noonday light,
> Rank behind rank, like surges bright
> Of a broad sea of gold;

or that line of "The Armada" which I know at least one child to have repeated over and over to herself with never-failing delight—

> Night sank upon the *dusky* beach, and on the *purple* sea.

And in this connection I may say that, while few children care for long pieces of description for its own sake, it is quite another matter when it is used as a setting to the doings of their favorite heroes and heroines. Their vivid imagination will gaze, like the travelers to Camelot,

> where the lilies blow
> Round an island there below,
> The island of Shalott;

will hear the whisper of

> The reapers weary,
> Piling sheaves in uplands airy;

will watch delightedly the passers up and down the highway—

> Sometimes a troop of damsels glad,
> An abbot on an ambling pad,
> Sometimes a curly shepherd-lad,
> Or long-hair'd page in crimson clad;

and in the brilliant verses which flash Sir Lancelot into the mirror I do not think that the detail of "the blue unclouded weather" will be lost upon them.

The things of which I have spoken so far belong much to form, and their appeal is mainly sensuous and a little emotional. Have we anything to consider now as regards thought? Here, once more, what do the children like? We all answer, "Story," especially story of martial or adventurous doing, of brave knights and fair ladies. I think this is true of little girls as well as little boys, and at least I am sure that it is the kind of thing on which we shall do right to rear them in particular.

Luckily, story, and story of this sort, in poetry is not far to seek, and we may add to the "Lays of Ancient Rome" Lockhart's "Spanish Ballads," Aytoun's "Lays," and—supreme above all for children at this age—"The Lay of the Last Minstrel" and "The Lady of the Lake." For in these last are all those things which children love found together, and many among us can say, in the words of Mr. Andrew Lang, that from Scott, "as I followed the deer with King James, or rode with William of Deloraine on his midnight errand, did I learn what poetry means and all the happiness that is in the gift of song."

Some of the Percy "Reliques," too, are quite the right sort of thing, and I have found that their antiquated language is a commendation, rather than an obstacle. Children are hugely pleased with "King John and the Abbot of Canterbury"; and I still keep pleasant recollections of "Mary Ambree," tho the puzzle of her slashing her foeman in three "with *one blow* of her broadsword" remains to me yet. Among modern poems I may mention as excellently suitable Ingelow's "Ballad of Winstanley."

But, you may say, is not all this rather desultory? Are we, at least after nursery age, to do no sort of methodic teaching? To this I answer, in the first place, that it is this broad and free contact with true poetry, this unmethodized intimacy with it, this *playing* with it, if you will, which is very part and parcel of sound method. It is lamentable that under our system of examinations the first acquaintance of our children with literature should so often be an anatomical one—that the first thing they are taught to do to a poem is to dissect it. The skilled hand may, in truth, dissect tenderly, lovingly—nay, he may learn to love yet more deeply by the very process. Yet his *first* love comes not by analytical processes; rather, he dissects because he loved long ago—he knew not wholly why. I think it is those who have waded thru the long meadow-grass and plucked profligate handfuls of daffodil and cowslip and bluebell and anemone, in sheer delight of color or perfume; plucked them and thrown them, perchance, away to gather others—it is these, I think, who have grown up in the love of field and wood, who, later, may care to part the tiny ovary cells with the scalpal or to examine the pollen beneath the microscope. And so it seems to me in literature the saturation principle—the plentiful nourishing with ballad and song *before* the age for lessons in literature—is the true and solid foundation.

I ventured to say at the beginning of this paper that it is not desirable that the children should *understand* all the poetry we give them. Perhaps I should also have said it is not possible to make them do so; or, if it be possible, it is so only by killing in it the better thing—the spirit, that is, by the letter. There is a fallacy of thoroness in teaching, which is nowhere more of a fallacy than in literature.

Yet of course we do not want the understanding of the poetry taught to increase gradually: we want "knowledge" to "grow from more to more . . . that mind and heart according well may make one music." And my own experience makes me feel very strongly that much real literary teaching may be given by the somewhat detailed and methodical study of single poems—preferably, as I think, short ones.

But, apart from any such formal lessons, and by the medium of this free and—if you will—desultory reading of poetry, I believe that much, very much, may be done by a sympathetic guide to open ear and eye and heart to *what is in* literature. I adduce one more personal experience. I certainly was not more than eight or nine years old when, reading for the first time Tennyson's "Morte d'Arthur," and being fortunate enough to possess such a guide, my attention was called by her to the beauty of the picture drawn in the lines

> A chapel nigh the field,
> A broken chancel with a broken cross,
> On one side lay the ocean, and on one
> Lay a great water; and the moon was full

and especialy to the effectiveness and yet perfect simplicity of the last sentence.

A very little thing, and pointed out quite informally; yet I never read those five monosyllables now without the flood of silver radiance pouring over the picture that was first let in upon it by that remark. The words mark for me a real epoch—a date after which I saw into poetry a little deeper, and cared for it, therefore, a little more. Now it seems to me that in all first teaching of literature this is the thing that really matters—the *fruitful* thing, because it does not end, as so much so-called *literature* teaching does, with itself. Only, we must have the sympathetic guide; and perhaps this will mean beginning not with the children, but rather with many of the parents and, it may be, with some of the teachers.

Liverpool. PRINCIPAL OF ST. MARY'S HALL.

The primary school has a great opportunity; but the direction which it gives is too often lost in the stormy days of opening manhood and womanhood. The secondary school, the high school, deals with characters which are taking their bearings and fixing their course for the real journey of life. The greater part of what it effects will abide. If it ennobles human lives, they will in all likelihood keep some of that nobility to the end.

ELMER E. BROWN.

U. S. Commissioner of Education.

Parents who are conscious of their educational responsibilities and seek to live up to them are the moral strength of the country. They always ask "How are the schools?" before they locate anywhere. People of this stamp are worth having. They make the most desirable citizens. Moral: Good schools build up the town.

Correlation; Co-ordination; Concentration. III

IV. Correlation from the Teacher's Point of View

ALL the theories outlined above have reference to the making of the Course of Study, with which the teachers in the class-room have little or nothing to do. Are these then mere academic questions without vital relation to a teacher's work? If so, is it worth while to follow the long-drawn-out discussions to their wearisome conclusions? Or, shall we relegate such matters to the limbo of "innocuous desuetude"?

1. RELATION TO METHOD.

It will be found, upon reflection, that correlation is a vital principle of method. The demand for unity of knowledge being an instinct of humanity, the principle must be observed in the art of teaching as well as in the arrangement of the subject matter in the curriculum. All the arguments employed to urge the necessity of correlation in the selection of knowledge will apply with equal force to the teaching of the same. Apperception, Interest, and Economy all demand correlation in presenting subject matter to the child. Even in the most carefully correlated curriculum the class teacher still has to point out to the child the mutual relations of things that are learned and done. The curricula of many cities embody merely nominal or accidental correlations; and wherever this is the case the principals and teachers should work out in detail such correlations as may be found feasible and desirable.

2. SEQUENCE.

We must remember that one of the meanings of correlation refers to the arrangement of subject matter in proper sequence. The material, in the first place, must be so arranged that each grade articulates smoothly with the preceding and succeeding grades; that needless repetitions are avoided; that no gaps exist; in short, that teachers shall not work at cross purposes.

There should be also in each grade and in each subject a starting-point of *interest*. This is usually found in what is near, familiar, and concrete.

3. INTERRELATION.*

Having arranged each subject into a logical and well-articulated series of topics embracing all the grades in the school, the next problem is to find correspondences between the topics of the different groups. It will be found that history, geography, and nature-study present many common points. Without destroying the logical order of the different groups, it is often possible to move together these related or identical topics. In local history you may be required to present biographical stories of historical characters; in local geography you are to teach monuments and other places of interest. You can do both in one lesson by associating your story of the man with his monument. In this way you have not only saved time by combining two lessons into one, but you have added interest and worth to each topic by associating it with the other. The monument means more for having a story attached to it, and the story is more real for being connected with a concrete object.

In a similar way language may be correlated with every other subject. But the first requisite is always a well-adjusted series of topics within each group of subjects. For instance, all the topics of the grammar to be taught in each grade must be carefully dissected out of the general subject and arranged in proper order. Only then is it time to begin to look for opportunities of correlation. The sort of correlation which proposes to teach as subjects only *reading* and *composition*, while grammar and spelling are to be taught incidentally, when the teacher finds it convenient or happens to think of it, is to be condemned utterly. First decide what is to be taught, then teach it as economically as you can; but whatever else you do, be sure you teach what you set out to teach, and be sure also that your pupils know what they are supposed to have learned. We are to correlate topics not to emphasize them less, but more; not to make one subject supreme and another incidental, but to create a more abiding impression of each by the combined illumination of both.

---

*Following this article (on page 656) will be found an illustration in history and geography of "cross-correlation" or interrelation to secure breadth of knowledge, manifold association, interest, and economy. Each subject presents at the same time an illustration of vertical correlation and isolation for orderly sequence, clearness of comprehension, and depth of impression.

4. ISOLATION.

In other words, there are to be observed, in the arrangement of topics and methods of teaching, two complementary principles,—the principle of correlation and the principle of isolation. Correlation is demanded by the unifying instinct of the mind; isolation is based on the fact that the child can do only one thing well at a time. Each subject has its own principle of development. Each science begins with certain fundamental notions and develops from these into a systematic whole. This proper order of development is not to be violated for the mere purpose of making artificial correlations with another subject. Isolate your subject, let it progress in proper sequence from the simple to the complex; let it stand on its own feet. Then let it clasp hands with other subjects similarly situated, for mutual assistance; but in no case must either lose its identity or be sacrificed in the interest of the other.

Complete isolation results in mechanical perfection. The impression is deep, but narrow. Knowledge so gained lacks associations and does not cultivate insight and resourcefulness.

Complete correlation results in vagueness. The impression is very wide, but neither deep nor clear. A pupil so taught knows many things superficially, but nothing very definitely. Different subjects being constantly associated in single processes of teaching, the pupil does not get a correct concept of any.

A middle course will be found to be the path of wisdom.

Correlate for mutual illumination, for interest, for insight, for economy; isolate for depth of impression, for clearness of comprehension, for thoroness of drill. Isolate subjects to allow freedom of development in each; correlate them to secure a knowledge of their relations to each other and to the practical affairs of life.

The amount of desirable correlations decreases as we ascend the grades of the elementary school. In the first grade there will be but little differentiation of the subject matter. There will be nature study, stories, number work, reading; and these may all be combined in a single lesson. Little by little, as the child progresses, studies are isolated, and in the highest grade correlation is at a minimum.

In every grade the material for the formal language exercises is contributed by the other subjects. The information or thought-stuff comes from history, geography, science, literature. These, with the individual experiences of children, furnish the material for reading exercises, compositions, dictation, word-study. This is perhaps the most important phase of correlation from the point of view of the grade teacher; for only in effecting this happy union of content and form will she be able to apply the important principle that impression and expression must go hand in hand. In this sense every lesson is a language lesson. The only caution needed is that the child must not be too self-conscious of the form of expression, lest the vigor of his thought suffer. That is, when a child is explaining a problem in arithmetic, he should not be interrupted because he uses an ungrammatical expression; but should be allowed to expend his mental energy on the thought process. The language can be corrected at the conclusion of his recitation or during the grammar period. When a child is writing a letter, the form is important, but not nearly so important as the subject matter. The formal elements may be impressed before or after the writing; but during the composition, the mind should be occupied chiefly with *what* is said, and should not be hampered by too many "don'ts."

V. Limits of Correlation

In conclusion we may say, then, that the principle of correlation should be embodied in the Course of Study and in our methods of teaching. The limits of application, however, differ somewhat in the two cases.

In the curriculum correlation may be applied to any extent so long as we do not violate the principle of development of any subject. The necessity of economy and the psychic demand for unity are both subserved by the unification of subject-matter. In Rein's program* for April 15, nearly every subject is concentrated upon a core of Greek literature. From this single specimen it is impossible to tell in what order the several subjects are developed. If at any point violence is done to the sequence of one set of topics in order to make artificial connections with the topics in another series, the proper limits of correlation have been overstepped. A number of years ago the author attempted a close correlation of the history and geography of the seventh year in the New York Course of Study. In an effort to maintain the chronological order of history he was obliged to disrupt the causal series of geography. He had the plan tried by his own teachers as well as by those of other schools, and the unanimous verdict was that the experiment was a failure. On the contrary, in the same Course of Study, the science, geography, and history of 4A yielded readily to correlation; so also did the geography and history of 4B, 5A, 5B, and 6A, and the geography and science of 6B.

1. DEPARTMENTAL TEACHING IN ITS RELATION TO CORRELATION.

Within recent years the departmental system of teaching in the elementary schools has received much encouragement thruout the United States. The following program is an illustration of the way in which the method is commonly applied:

---

* Herbart and the Herbartians, De Garmo p. 163.

(5) Literatur
(6) Manual

It is evident that the plan
of isolation. It is not stran
objections urged against de
correlation in subject matt
an expert in a particular lin
the rest of the educational
is the be-all and the end-al
he were disposed to correlat
partments his effort in this di
teachers as a case of impertin
in his narrow channel. In thi
and the unity of knowledge is
of pupils. A well-known ins
to departmental work, even i
school, cites the case of a pu
tory under one teacher and
teacher, and who failed to ide
the Charles II. who figures in
trine of apperception be tru
"method of the recitation,"
related facts previously

his own. There is not only no co-operation between departments but usually the isolation of subject is emphasized by the jealousy of teachers. The English department thinks the Mathematical department is monopolizing too much of the pupil's time, while the Latin department is certain that both English and Mathematics receive more attention than they deserve. Meanwhile the teachers of Modern languages and of Music feel slighted because all other subjects are fostered at the expense of these very important studies. The truth may be that all are getting too much attention, and the pupil is overworked. He could often save much time and labor if he were allowed to combine exercises where the relation is obvious, but each department insists on its own separate installment of grist from the grinding of the unfortunate pupil.

All this is bad enough in the high school and college. It is intolerable in the elementary school. The secondary pupil has some degree of maturity and is able to make for himself some of the connections which his teachers should point out to him; but the child in the grades takes each subject as a separate dose, and has no power to see relations of this sort. Departments stand to each other in the relation of oil and water. Each makes a separate demand upon the pupil's memory. The system discourages correlation and makes it well-nigh impossible under the most favorable circumstances, while in most cases it erects barriers of prejudice and jealousy and prevents co-operation between the teachers of different subjects

2. Conclusion.

In the methods of teaching, the principle of correlation and the opposite principle of isolation are then both to be observed. We must not attempt to teach everything at once, nor must we forget to point out and utilize the relations that the several subjects and topics bear to each other. The evils of excessive isolation in departmental teaching may be mitigated by the careful supervision of the principal. The topics for compositions and the words for special study may be secured from other departments by the teacher of English; while the correlation of subjects like history and geography may be effected by assigning both to the same teacher.

JOSEPH S. TAYLOR, PH.D.
District Superintendent, New York City.

A Year's Work in Old World History *

Correlated With Geography for Fourth or Fifth School Year *

By OLIVE M. JONES.

Public School 19, New York City (Manhattan).

* Prepared under the direction of Dr. Joseph S. Taylor, and originally published by *The Teachers World*, New York. [See page 650).

FIFTH YEAR, FIRST HALF.

HISTORY.	GEOGRAPHY.
1. 1—*Stories and Legends of the Creation and Deluge. Adam. Noah. Dispersion of the Races. Noah's three sons.**	1. 1—Asia: Position. Size. Form. Outline. Position: On the globe in relation to other continents, to oceans. Size: In even millions and relatively. Distance: By length of journey. Form and Outline: Regular or irregular, bad harbors or good.
2—*Where the history of the world began.* (Great diversity of opinion regarding this, so do not make teaching authoritative). From this first home the Caucasian race went out. Includes all the white people. Racial char-	2—Chinese Empire: Position. size. Outline. Surface. Climate.

---

* Italicized portions are review points taught in previous grade.

The first column of figures in each subject denotes the weeks; the second column the lessons.

acteristics: very general.	
3—North of the first home of the Caucasian race lived a race of people, called Mongolians. Stories of Chinese, as type.	3—Productions. Occupations. Exports. Trade. Capital. Chief City. Government.
2. 1—Europe at first sparsely inhabited by wild tribes of Mongolians. Their presence shown by Finns, Lapps, Basques. Stories of Lapps, as another type of Mongolians.	2. 1—Europe: Treated in the same manner as Asia in Week 1.
2—Another race who lived and still live in Asia is the Malay. Very similar to the Mongolian. To it belong the Malays of Eastern Asia. Stories.	2—The East Indies.
3—Stories of Japanese as another type of Malay race.	3—Japan: Treated in same manner as Chinese Empire in Week 1.
3. 1—Caucasian race is divided into three great races: Aryan, Semitic, Hamitic. Racial characteristics of Semitic race, as typified by Hebrews. *Stories of the Hebrews.* Note our religious indebtedness to the Semitic race. The three religions which teach but one true God, Jewish, Christian, and Mohammedan, are all of Semitic origin.	3. 1—Asia: Surface: Ridges, slopes, plains, river basins
2—*Stories of Assyrians and Phoenicians*, who were also Semitic people.	2—Europe: Same points as to surface.
3—Completing week's work. Note that the Mediterranean Sea is, for ancient na-	3—Compare surface of Asia and Europe.

tions, the center of maritime operations.	[illegible]
4. 1—A fourth great nation was in ancient times on the shore of the Mediterranean Sea. *Stories of the Egyptians,* a type of the Hamitic race.	4. 1—**Africa:** All points from Position thru Surface, as in Asia and Europe.
2—The interior of the African continent is occupied by the negro or African race. Stories, showing racial characteristics.	2—Comparison of Europe, Asia, Africa, in all these points.
3—Summary of work studied so far:— Aryan Semitic: Assyria, Phœnicia, Hebrews Hamitic—Egypt Mongolian: Chinese, Lapp Malay: Japanese, Malaysians Negro: Natives of African interior.	3—Review of all work completed.
5. 1—Greatest division of Caucasian race is the Aryan. Story of the Aryan in his first home.	5. 1—Europe, Asia, Africa: Climate. Causes affecting.
2—Aryans did not leave their Asiatic home all at once, but in numbers, wandering away at different times. Some Aryans did not go very far, but stayed in Asia and founded great nations there. *Story of the Persians.*	2—**Persia:** As with Chinese Empire, Week 1.
3—Stories of India. The Hindoos and Persians represent the Asiatic branch of the Aryan race.	3—**India:** As with Chinese Empire, Week 1.

6	1—First divisions of Aryan race to leave Asia were the Celtic, Teutonic, and Slavonic tribes. They wandered in a half-wild state over Europe, driving out the Mongolians whom they found there. Stories of Irish, as type of Celts.	6.	1—Russia: As with China Week 1.
	2—Stories of Russians as type of Slavonic tribe. (All the people of the eastern European States belong to the Slavonic race, except the Turks and the Magyars of Hungary.		2—Small countries of Eastern Europe.
	3—Stories of Scandinavians as type of Teutons.		3—Scandinavian Peninsula.
7.	1—Last division of Aryan race to leave Asia was the Pelasgic (founders of Greece), and the Latin (founders af Rome). *Stories of the Greeks, Trojan War, Achilles.* The Greeks in war: Either the story of Thermopylæ or of Marathon. *Alexander the Great.*	7.	1—Greece: As with China, Week 1.
	2—*The Greeks in art: Phidias.* In learning: Socrates. Athenian culture. Spartan training. Influence of Grecian culture on civilization.		2—Italy: Same points. Switzerland.
	3—*Story of Rome: Romulus, Horatius.*		3—Europe: Distribution of plant life and productions.
8.	1—*Romans in war: Julius Caesar. Roman power: Augustus Caesar. Roman wickedness: Nero.*	8.	1—German Empire: As in in China, Week 1.

2—*Division of Roman Empire: Western half, Rome, conquered by Goths.* Stories of the Goths, who were of the Teutonic branch of Aryan race.	2—Same, continued.
3—Eastern half became Christian Empire under Constantine the Great. *Conquered* 1453, *by the Turks,* under Mohammed.	3—Turkish Empire: As in China, Week 1.

School is the seed-time. The ripening of the fruit is often hidden from the eyes of those who toiled faithfully to make the harvest abundant. The teacher's work is made up of many small duties that do not all, on the face of them, show their relation to the future results. The watchful care and loving thought are not always estimated at the value they actually have in the upbuilding of young lives. Looking after the little niceties of conduct, clean hands, sharpened lead pencils, neat writing, and the thousand other details profits more than exhibits at the county fair. Faithfulness in these little things is well worth while. The heart and thought behind them will not always be taken account of, but the results have entered into the shaping of character and the world has been made the better thereby.

Let theorists build glittering castles, but let us be sure of at least a humble hut to shield us from the storms, and, if so it may be, a little garden around it, where the birds shall visit us and tell us why our own flowers are so much sweeter than those of Never-Never Land.

A cheerful outlook upon life is essential to a teacher's usefulness. Not the cheerfulness of self-satisfaction but of gratification—gratification at one's own growth and the growth of one's pupils.

The Autobiography of a Teacher

VIII—First Experiences in Teaching

I CAME to my teaching in a distinctly objective mood. I was very much more interested, as I have said, in the subjects I was to teach than in the human material to be taught. And this, in spite of the fact that I was even then a pronounced idealist. But I loved science, next to my family, above everything else in the world. This devotion has been a source of great happiness, and still remains, but fortunately it is now only one aspect of a much larger human concern for the whole of life. At that time my devotion to science was undoubtedly out of proportion, almost intemperate, but this was due, I think, to the fact that it had been to me the open door into the intellectual life. I did not appreciate the fact that big as it is, science is only one out of many doors into the realm of the spirit.

The first years of my teaching were marked for me by my own conversion to a larger point of view. This experience is not novel. It was Saul, I think, who started out to seek his father's asses and found a kingdom. But for the one who meets it, the experience is never without importance. As a child, I had read Longfellow, and some of the more objective poets, but I remember that my first real love for deeper poetry was awakened by finding that the poets were such true scientists. I read Browning's "Paracelsus" in a genuine fever of excitement. And when I recounted the experience to a great lover of poetry, one of the distinguished editors of *Poet-Lore*, I was interested to find that she had traveled the same road but in a reverse direction, her own profound love for science having come thru her earlier love for poetry.

My entrance into the teaching world was to have been by card of invitation, but it turned out that here, as in journalism, I had to come as an intruder.

The manual training high school was established in Philadelphia in 1885. If I remember correctly, it was the second public institution of the kind in America, the first one having been established in Baltimore in the previous year. The kind head-master who had prepared me for the university had meanwhile been made an associate superintendent of city schools, and as soon as the manual training school was projected thought of me as a suitable person for the chair of science. When he spoke to me about it, I accepted the idea with some degree of cordiality, but apparently gave it no special thought during my first year on *The Scientific American*. For one thing, it was in the future, as the science would not come until the upper years of the high school course, and I was just then trying to live in a very practical present. I had almost forgotten the matter when word came from my old master that the post had been created and would be filled early in July. Meanwhile, however, two other candidates had presented themselves, and it had been decided to submit the issue to a competitive examination.

Personally, I have my doubts about the wisdom of competitive examinations, and especially for the higher posts in our school system. These examinations too much leave out the more subtle and vital part of a main qualification. And then, for another thing, you cannot, as a rule, get the best men to compete. A master who is doing acceptable work and has a fine record back of him, both as teacher and student, naturally feels that the materials for a judgment of his ability already exist, and is quite unwilling to put himself in the undignified position of competing for accidental and precarious favors at the hands of examiners who are frequently not his own peers.

This would certainly be my own position, and I felt very much the same way then. It is true that I had no record as a teacher to point to, but my university record was open, and the work I was then doing on the editorial staff was not without significance. I put aside these objections, however, and went into the competition; and I did so for reasons partly valid and partly trivial. My least defensible reason was that having been a candidate at the invitation of my old master, I felt that

I rather owed it to both him and to myself to justify the invitation, now that the powers-to-be had added this uncomplimentary string to it. But I also had graver reasons. In the first place, I was homesick, and I fear that counted for more than anything else. In the next place, I was beginning to realize that the newspaper office in which I found myself did not, as Louis Lambert would say, belong to my Heaven. Finally, and very important, the post seemed to offer a return to that world of pure science which still held for me the greatest fascination.

Circumstances proved very amenable to the arrangement. I had been out of college three years and was deplorably rusty in all those details and theories which examiners most delight in. But it was summer, and quite easy for me to ask and be granted a week's holiday. I went home and studied. It is a wonder that I did not get altogether stale, for I worked morning, noon, and night. The examination was to cover three subjects—chemistry, physics, and mathematics—and those who have tried to bone up in them in a single week, after three years of baccalaureate immunity, will readily understand that the task was not easy. The examination day, in early July, proved to be very hot, and the hours were brutally long, practically from nine in the morning until seven at night, with only a short intermission for luncheon. Towards the end I was so completely tired out, and so angry at what seemed to me the inconsiderateness of the examiners, that I was honestly indifferent to the result. Then I went back to New York and waited. Every day I scanned the columns of *The Public Ledger* for the scant educational news that finds itself paper-ward in July. Finally, at the end of a week, I lighted upon a little paragraph that stated in very unemotional fashion that I had come out ahead and had been duly elected *professor* of natural science in the new high school. I was then twenty-four and quite old enough to be more sedate, but in reality my delight was wholly boyish.

A few days later, official notification of my appointment came, and then I told Mr. Beach I did not realize until afterwards how much I owed to him and to my training on *The Scientific American* in securing the appointment. The other two candidates were fresh from college, and I have not the least doubt in the world knew much more about the subjects than I did. One of them was a stranger, but the other one had certainly had more thoro as well as more recent training. My own advantage was wholly in the power of expression. The newspaper experience had made such knowledge as I had, available, and in an examination, that counts for quite as much or even more than the fund of knowledge itself. It is not what you possess, but what you bring to the front. Recalling the contest, it seems to me that I won solely because I was the best tactician. But this is only one out of many instances in which I have been led to feel that the power of literary expression, even so modest a power as my own, gives its possessor an almost undue advantage over his fellows. It brings him a hearing sometimes out of proportion to the worth of his experiences, even in some cases, out of proportion to the worth of his message.

In writing the present autobiography of the pedagogical side of a life I am occasionally halted by the thought, that of the men and women who read it there are doubtless many who could tell a more remarkable story if in the course of their busy lives they had only allowed themselves to cultivate the habit of telling. It may be that my own story is the most worth while for the very reason that it is too little remarkable to be exceptional. If I were a genius, I might be less helpful to other teachers who are not geniuses, for the recorded experiences would cease to be suggestive. At any rate I want to say once more, at the imminent risk of being tiresome, that I am giving this partial record of a teacher's life simply because it seems to me typical, and therefore of possible helpfulness.

I gave a month's notice, asking that my resignation be accepted for the middle of August. In spite of my delight at returning to Philadelphia, I parted with Mr. Beach with genuine regret. He and his business colleagues had been exceedingly kind and courteous. I had no cause of complaint against them, or personally against any of my fellow-workers. It was the spirit of the office that I rebelled against, and that may have been the spirit of New York, the spirit of business. Mr. Beach was so much older than I, and in some things so much wiser, that it would have seemed to me ungracious, perhaps even impertinent, had I told him quite frankly the cause of my dissatisfaction. But I think that I ought to have tried at least to explain to him that an earnest worker will not pull in the same harness with mere wage-takers and time-servers, that to be happy and contented, he must work in company with fellow craftsmen for ends which they all believe to be good. Had I made my point, the friendly service would have been great. Had I failed, the lost effort, even the chagrin of a rebuff, would have been a small thing compared with the valuable lessons that I carried away myself.

The school did not open until perhaps the second week in September. My mother and I spent the interval at Eaglesmere. I was almost foolishly happy. I was back again with my best comrade, and was once more in that more gracious and high-minded world in which not only I, but all of us properly belong. My enthusiasm for the new work deepened the more I thought about it. My mother and I recalled the meeting with Professor Woodward and all he had told us about manual training. The outing did me good. I went to my work in the best of health and spirits. It seemed wise for us, on account of my mother's health, to remain in the country all winter. The daily journey in and out of town was trying, but the pleasure of being at home, with all the family, made up for any amount of inconvenience. We had many pleasures, too, and so my mother and all of us were out a large part of our spare time.

At school, I was meeting many of the usual experiences of the novice. Many of my boys were great big fellows as tall as I and only a few years younger. That they were on the ground first made it a little harder. From a strategic position the had the advantage, and I had to work against some odds. Bu in many respects the conditions were eminently favorabl There was that air of enthusiasm which attaches to new enterprises. In addition, we had an unusual faculty, some of whom have since made their mark in other fields. All the men wer young, and all in the academic department were universit graduates. The men in the manual departments were artisans without special pedagogical training, but they were quite th finest set of artisans that I have ever known, and their devotio to the school was inspiring. I like to recall those days, and find that my colleagues of the same period like to recall them We made a singularly happy and united group. I was onc more among fellow-craftsmen working for the joy of the work The director of the school was a naval officer detailed for tha special work and was very popular. Our consternation can b imagined when, at the end of six years, peremptory word cam from Washington ordering him to report immediately for se duty. Protests and lamentations filled the air of our littl community, but to no avail. Washington is not to be gainsaid and in three days we were without a head. It was a tryin situation, and the more trying because the new director wh seemed imminent was quite unknown to us, and thru som unfounded prejudice on our part, was altogether unwelcome But our good fortune did not desert us. The unwished-fo director came, it is true, but he proved to be the right man fo the place. Afterwards we told him how little we had wante him, but I am sure that he did not mind, for in the meantim we had rallied around him with that loyalty and devotio which young men of a hero-worshipping sort are ever read to bestow upon a wise leader. The new director was not college man, but he was a tactful schoolmaster, and had th rare faculty of getting the best work out of his men. If i chanced that they knew more than he did, he was the first t recognize it and take advantage of it. In saying this, I pa him the compliment of wise generalship. I could hardly hav chosen a more favorable environment in which to begin my work as a teacher.

In time, the boys were also an unusual lot. At first, they were rather mixed. The purpose of the school was misunderstood. It was supposed to be industrial. The manual training was regarded not as a new method in education as applicable to prospective college boys as to avowed mechanics, but was regarded, except on the part of a chosen few, as a clever device for taking the place of the now defunct apprentice system. Very soon a better class of boys began coming to the school. We had, of course, our lean years as well as our fat ones, but taking them all in all, it would have been difficult to find a set of boys more essentially and humanly interesting than those who came to the shabby old school-house which then sheltered the manual training idea. Some classes stand out above others. The class that came in the year after I entered the school, and was graduated three years later—contained a notable number of unusual and able boys. Many of them are still among the best of my good friends. My experience there and afterwards has given me a very high opinion of boy-nature. I have known with some degree of intimacy several thousand boys and I have rarely known a really bad boy. I have met with a very few criminals among them, but one had only to look them over carefully to see that they were unfortunates, defectives who needed a wise physician rather than a schoolmaster or a jailer. I do not mean that all my normally-minded boys have turned out well. Occasionally I meet one who has grown cynical and mercenary. Occasionally I hear of one who has gone wrong. Sometimes a lad very near my heart has failed to fulfil his early promise. But I know that in all of them there were germs of great good which cannot wholly die, and that either in this incarnation or succeeding ones they will yet become true men.

The problem of discipline is always the *bête noir* of all young teachers. It loomed up pretty large to me during the first few

but it was the righ
It is a commonpla
rule far better th
know among other
expect of them. L
this expectation. I
you expect a child to
But that other expe
even greater miracle
or studied little manu
had to work it out fo
less a man than Em
spiritual poise he was
for my boys, and I ha
of my mother. It was
of conduct. I do not t
philosophy of life into
unfaltering expectation
more than all the homili
sometimes saving grace
deemed by being lecture
them into the silence.
narians that I ever knew
of dignity. Th

can stand out against the discipline of the spirit. But it must be genuine. The teacher's self-control must be real, not assumed. The silence must not be that of indifference or discouragement. It must be the silence of expectation and assurance. In a word, the successful disciplinarian must be a good deal of a mental scientist. No teacher of experience will be deceived into believing, nor would I wish even the novice to believe temporarily, that all this wisdom came in a flash. Even with such unparalleled teachers as I had, my training proceeded slowly. But I did learn, that very first winter, I think, to wait serenely. When I stood up to lecture, I waited for the silence that I had a right to expect. When I began a recitation, I waited until all were silent and attentive. As the months flew past, these waits became appreciably shorter.

In the actual work of instruction I was less fortunate, and suffered moments of extreme discouragement. Many of my blunders were due wholly to lack of experience; others to temperament. Being naturally quick myself and having had an unusually varied experience for one of my years, I expected too much of my boys. Their ignorance appalled me, their inarticulateness, their slowness in both observation and reasoning. In my impatience, I would jump into the breach myself, answer my own questions, and end the lesson in a flood of talk, part explanation, part illustration. As the talk was drawn from my own reading and experience, it was sometimes interesting and usually held the attention of the boys, but it was not teaching. Then I would repent in sack cloth and ashes, and wander deep in the shadows of the valley of self-abasement. I often wondered whether those other two candidates would have made such fools of themselves. Several times during the first year I thought seriously of resigning. It seemed to me only fair to give some other man a chance to do better. I never went so far as to write out a resignation. A night's sleep, a good sleigh-ride, a long walk, a talk with my my mother, some kind words from the director and I heartened up enough to go on. It came to me, too, that I could not properly resign and leave such a record. It seemed to me that I owed it to school and to everybody to go on teaching for several years u I had brought my work up to a decent average, and that th if I wanted to, I could honorably withdraw.

It is needless to say that with my hands so full of proble in my own department, I gave scant attention to man training. The truth is that my own belief in it was still th retical. I had not come into practical contact with it, an had too little knowledge of psychology to realize with wha tremendous educational opportunity we were brought face face. That was to come later. In addition, I still spelt scie with a very large capital, and in my devotion was blind much else around me. When June came I was distinctly a audibly relieved. I had ten weeks of freedom in which to just what I choose. That first long holiday was nota because it was the beginning of a series of wonderful summe And it was also notable for another and a tragic reason,- was the last holiday that I had my mother with me.

To a young man of such varied interest, the summer holi offers an embarrassment of riches. There are so many delig ful things to do that it is really hard to choose. In the e after no little pleasant debate, we hit upon a trip to the Ca lina Mountains. There were four of us—my mother, sister, a charming cousin from Maryland, and myself. U fortunately, my father could not leave his business. We w down to Roan Mountain Station in Tennessee, where we sp a week at one of the most amusing boarding-houses any of had ever encountered. Then we moved half-way up t mountain to Burbank, where we spent another week with very agreeable family whose culture and pleasant worldlin were in sharp contrast to the rambling log house that constitut the family mansion. At the end of the week we climb still further to the very summit, to the old Cloudland Hot some 6,400 feet above the sea, It may be that we were in just the mood for it, but everything delighted us. I h seldom seen my mother so happy. It was a pilgrimage to lo back upon. The scenery was a constant and intense delight. The mountains were covered with trees to their very summits, and stretched like giant billows of green in every direction. The clouds gave unending combinations of beauty. The plant life was varied and interesting. The mountain folk were too novel to seem dull. Then we went down the mountain on the other side to Bakersville, the center of an already expiring mica industry. There was still enough activity, however, to stir my own geological and mineralogical interest—an interest that proved contagious, and soon sent us all to collecting specimens. We visited nearly all the mines still in operation, and searched over the dump heaps of those already abandoned. One particular experience stands out sharp and clear. We were at an old mine—the Clarissa, I think. A heavy blast had just been fired in one of the open-air headings. As soon as the dust had subsided and it was considered safe we all rushed in to see the result of the blast. In front of us rose a dazzling wall of the purest white feldspar. In the center of it, like a blood-red star, was the ruby, glistening cross-section of a giant garnet. We did not always meet such theatrical displays as this, but we never came home from these expeditions without some reward in the way of memory or "find" that seemed to us wholly adequate. I collected materials for an article on "Mica and the Mica Mines," that was afterwards published in *The Popular Science Monthly*.

At Bakersville we lived in a very pleasant old house on the outskirts of the village. On the other side of the village, our old friend Roan Mountain, sent its dear outline high against the northern sky. I do not remember the family very distinctly, for they fade into rather shadowy memories beside the distinct picture of our real guide, philosopher, and friend, a remarkable old colored woman by the name of Aunt Viney. She ran the family in a truly masterly fashion. She had been their slave. But the war made no difference. She still worked for them, early and late, and I think without any wage,—a pure service of love. She attended to the house, tidied up our rooms cooked our meals, waited on the table, took care of the children, worked the vegetable garden, raised the flowers, did the laundry work, and managed the poultry. Often at ten or eleven o'clock we saw the light burning in the kitchen quarters and Aunt Viney still at work.

I think she was not a full-blooded negress, for she had a yellow skin and the gaunt lean frame of a typical New Englander. But, whatever her blood, I have never met so devoted a worker, or known so complete a saint, measured in terms of good works. She has doubtless gone to her rest now, and I think St. James himself must have given her special welcome. I am myself rather an active person, but when I think of this old colored woman, I feel myself a lazy good-for-nothing, and fall to wondering what she would have accomplished could she have had my own great advantages. I have put her in "John Percyfield," and have made her rather a prominent figure, for she needed no idealizing. Aunt Viney was fond of us all—my sister and cousin and me—but her great love went out to my beautiful mother. When the day of parting came, the old woman broke down. "Ah, honey," she said, "I mose wish you hadn't a come, fur I'll nevah see you again—nevah!"

Still another experience came to us during that memorable summer. We hired a wagon, a pair of mules, and a most original and entertaining driver. With this equipment we took a four days' driving trip to Asheville and back. The roads were so frightful that we walked a great part of the distance in order not to be shaken to pieces, but it was a pilgrimage of delight. The driver's comment when we got back to Bakersville came to us indirectly: "Folks may call 'em queer, but they knowed what they wuz about!" With this commendation for efficiency ringing in our ears, we retraced our steps over the great mountain, and reluctantly took train for home.

The second year of my teaching things went very much better. I began to feel a genuine joy in the work. For one thing, I was, of course, gaining experience. I was learning to talk less myself, and I was more patient in drawing my boys out to express their own ideas. But the great change was in my point of view. That was shifting from science as an objective end to science as a means of human development. That is to say, the spirit of the teacher was growing up in my heart, and I myself was undergoing what might be called conversion. Many things happened to further this process. We spent the winter in town, and this brought me, intellectually speaking, several days of fate. I became a member of the Metaphysical Club, out at the University. More important still, my sister and I became members of a little circle of people destined to exercise a great and lasting influence upon both of us. It was an Emerson Club and met every Saturday night at the house of one of its members. The membership never exceeded fifteen, I think, and sometimes fell to twelve, but the influence of the Club upon its members was greater than that of any organization I have ever known.

The story of my own intellectual life would be sadly incomplete without grateful and insistent mention of this little club, without officers, without club-room, without dues, without red-tape of any kind whatever, but wholly given over to the sincere study of a great master—"the most considerable man of letters that America has yet produced." So deep is my own gratitude to this gentle spirit, so profound has been his influence upon my life, that if these fragmentary sketches failed of all other spiritual harvest save that of turning some one soul to a study of Emerson, I should feel that they had been worth while. I remember that a cynical friend laughed at my devotion, and told me it was a young man's infatuation, that it would be outgrown and that in a generation Emerson would be forgotten. But it has not turned out so. Emerson's place in American literature and prophecy is more firmly fixed than ever, and as we come to know the inner life of later Americans who have done things of worth, it is seen more and more how deep and widespread has been his influence. I have just been reading Harwood's interesting book, "New Creations in

Plant Life," in which he tells the story of Luther Burbank's life and work, and I have been deeply touched to learn the devotion and faithfulness with which, for half a century, this master in the plant-world has followed with sublime literalness the spiritual teachings of Emerson.

I also came into closer touch that winter with the Quakers, more especially of the liberal, or Hicksite branch, with some charming Unitarians, with members of the newly formed Ethical Culture Society, and with other persons of unorthodox views and useful lives. It was on the whole a winter of much spiritual and intellectual activity.

Another and still more human influence was working. The incoming class that year, as I have already said, was marked by the presence of an unusual number of very attractive and promising boys. They appealed to my affection in a way that no strangers had ever done before, and many of them still remain my best and most intimate friends. It was a new experience for me. As a small boy, I had had the usual number of innocent little love-affairs, but these once outgrown, all my emotional life centered in my family. But this daily contact with a choice group of lads who rapidly changed from strangers into dear comrades opened my heart to larger dimensions than it had yet known, and made my whole life more human. One does not realize these changes while they are in progress, but afterwards, when the moment of insight arrived, it seemed to me that it was I who had been going to school, and that it was these alert and lovable lads who had been my teachers. I have since had times of great discouragement, brought about by lack of health; and periods of spiritual drought, brought about by selfishness or some similar blindness, but at my best, I have found teaching a work both easy and happy, for love has its own insight and is pretty sure to find a way.

The teaching work was heavy. I had twenty-eight hours of actual recitation and lecture and laboratory class work a week, in addition to caring for the apparatus and chemicals. But early in the autumn I had it all so well in hand that I began to cast about for other activities. Beside my occasional lectures at the Franklin Institute, I volunteered a Friday evening course of chemical lectures in my own little lecture room. These were attended by genuine workingmen, mostly young fellows, who wanted to apply the knowledge to their several trades. I had in mind the example of the Workingmen's College in London, where Ruskin and other large spirits taught, and I started out with high hopes. The work was good for me, but my students came to me so thoroly worn out with their week's toil that they got less out of it than I could have wished. I should have offered the lectures on Monday evenings, or given them a greater spiritual content, and had them on Sunday.

In addition to all this, I decided that I should like to review books for *The Philadelphia Press.* The moment seemed favorable, as one of their principal reviewers, a University professor, had recently been obliged to withdraw, and there was a vacancy on the force. I laid siege to the paper after the method I had learned in New York. After several weeks, it capitulated, and the literary editor sent me a bundle of books to review. Again I was fortunate, for one of my early reviews caught the eye of the chief owner of the paper, a Pittsburg capitalist, who gave orders that I should have as much space as I wanted. In the end I became assistant literary editor, occupying the paper regularly every other Sunday and putting in such odds and ends as I pleased on Mondays. My field was amazingly wide. I reviewed books on science, education, religion, and economics! It was of course preposterous for one man to attempt to cover such a field, and I hope would not be permitted now. The principal reviews were all signed with my initials, so that the offense was not at least anonymous. I enjoyed the work immensely. It probably took more of my leisure time than was altogether wholesome, but this constant influx of new thoughts on subjects of such vital interest was an intellectual boon of no small magnitude.

The reviewing was incidentally of material help in paying off my debt. I got ten dollars a column for the reviews, and as I was allowed to devote three or four columns to any book that seemed to me worthy of it, the winter's pay ran up into the hundreds. My salary at the school was sixteen hundred, and was afterwards increased to eighteen hundred. I have spoken very frankly about money affairs, not because they interest me as such, but because they form a part of the practical problem which every man, be he idealist or realist, is bound to face, and also because at the start I made rather a mess of my own affairs from not knowing a few of the necessary commonplaces. But I may dismiss the problem from now on. I had already learned to live simply. When in addition to this, I learned to work solely for the worth of the work, I always had enough money and was even able to achieve independence. In saying this I am not recommending poverty. I disbelieve in poverty quite as heartily as I do in excessive wealth. It seems to me a part of the moral life to be independent, to be the master of one's own time, and I have no sympathy with a scheme of life which begins and ends in wage-slavery. If one's soul need a year in Europe, or a trip to Japan, or any other of those intellectual advantages, which do take a little money, it seems to me a serious defect in either enterprise or plan to lack the money. But a simple, industrious man, of keen sympathies and interest may achieve this modest good fortune without wasting a single day in work undertaken solely for money. He has but to busy himself in helpful human service that appeals to his own tastes and powers, and quite incidentally, enough money is forthcoming. In a word, when a man makes his work the major concern, good, humanly useful work, it is almost unavoidable that money in adequate amounts will come as a necessary by-product. There are, of course, persons who do not believe this, and who are ready with some vehemence to cry down so idealistic a view of work and pay. But they are commonly persons who have not tried the plan, and who have, therefore, no right to speak.

C. Hanford Henderson.

Educational Classics

Extracts from Horace Mann's Writings

HENCEFORTH, so long as I hold this office, I dedicate myself to the supremest welfare of mankind on earth."—Horace Mann's Diary, the day he began his work as Secretary of the Board of Education.

* * *

Let education, then, teach children this great truth, written, as it is, on the fore-front of the universe, that God has so constituted this world, into which He has sent them, that whatever is really and truly valuable may be possessed by all, and possessed in exhaustless abundance.

* * *

If I had fallen into errors, no one could have been more rejoiced than myself to have them pointed out, for I regard the man who detaches an error from his mind as more my benefactor than he who should extract a cancer from my vitals; and if friends are so faithless as not to disclose one's faults, it is almost worth while to have an enemy to expose them.

* * *

It did not at all enter into my present purpose as a motive, and yet it is a fact not unworthy of remark, that the present year (1847) completes the second century since the Free Schools of Massachusetts were first established. In 1647, when a few scattered and feeble settlements, almost buried in the depths of the forest, were all that constituted the colony of Massachusetts; when the entire population consisted of twenty-one thousand souls; when the external means of the people were small, their dwellings humble, and their raiment and subsistence scanty and homely; when the whole valuation of all the colonial estates, both public and private, would hardly equal the inventory of many a private individual at the present day; when the fierce eye of the savage was nightly seen glarin from the edge of the surrounding wilderness, and no defens or succor was at hand; it was, then, amid all these privation and dangers, that the Pilgrim Fathers conceived the magnificent idea of a Free and Universal Education for the People; and, amid all their poverty, they stinted themselves to a still scantier pittance; amid all their toils, they imposed upon themselves still more burdensome labors; amid all their perils they braved still greater dangers, that they might find the time and the means to reduce their grand conception to practice. Two divine ideas filled their great hearts,—their duty to God and to posterity. For the one, they built the church; for the other they opened the school. Religion and Knowledge! —two attributes of the same glorious and eternal truth— and that truth, the only one on which immortal or mortal happiness can be securely founded.

As an innovation upon all preëxisting policy and usages, the establishment of Free Schools was the boldest ever promulgated since the commencement of the Christian era. As a theory, it could have been refuted and silenced by a more formidable array of argument and experience than was ever marshalled against any other opinion of human origin. But time has ratified its soundness. Two centuries now proclaim it to be as wise as it was courageous, as beneficent as it was disinterested. It was one of those grand mental and moral experiments whose effects cannot be determined in a single generation. But now, according to the manner in which human life is computed, we are the sixth generation from its founders; and have we not reason to be grateful both to God and man for its unnumbered blessings? The sincerity of our gratitude must be tested by our efforts to perpetuate and improve what they established. The gratitude of the lips only is an unholy offering.

In surveying our vast country,—the rich savannas of the South, and the almost interminable prairies of the West—that great valley, where, if all the nations of Europe were set down together, they could find ample subsistence,—the ejaculation involuntarily bursts forth, "WHY WERE THEY NOT COLONIZED BY MEN LIKE THE PILGRIM FATHERS?"—and as we reflect, how different would have been the fortunes of this nation, had those States,—already so numerous, and still extending, circle beyond circle, been founded by men of high, heroic, Puritan mold;—how different in the eye of a righteous Heaven, how different in the estimation of the wise and good of all contemporary nations, how different in the fortunes of that vast procession of the generations which are yet to rise up over all those wide expanses, and to follow each other to the end of time;—as we reflect upon these things, it seems almost pious to repine at the ways of Providence; resignation becomes laborious, and we are forced to choke down our murmurings at the will of Heaven! Is it the solution of this deep mystery, that our ancestors did as much in their time as it is ever given to one generation of men to accomplish, and have left to us and to our descendants the completion of the glorious work they began?

* * *

But sometimes, the rich farmer, the opulent manufacturer, or the capitalist, when sorely pressed with his legal and moral obligation to contribute a portion of his means for the education of the young, replies,—either in form or in spirit,—"My lands, my machinery, my gold, and my silver, are mine; may not I do what I will with my own?" There is one supposable case, and only one, where this argument would have plausibility. If it were made by an isolated, solitary being,—a being having no relation to a community around him, having no ancestors to whom he had been indebted for ninety-nine parts in every hundred of all he possesses, and expecting to leave no posterity after him,—it might not be easy to answer it. If there were but one family in this Western Hemisphere, and one only in the Eastern Hemisphere, and these two families bore no civil and social relations to each other, and were to be the first and last of the whole race, it might be difficult, except on very hi and almost transcendental grounds, for either one of them show good cause why the other should contribute to help educate children not his own. And perhaps the force of suc an appeal would be still further diminished, if the neare neighbor of a single family upon our planet were as far fro the earth as Uranus or Sirius. In self-defense, or in selfishne one might say to the other, "What are your fortunes to me You can neither benefit nor molest me."

* * *

The distinctive and substantial difference between a republi and a despotism consists in the sovereignty or the subjectio of the people composing them. There may be the form an theory of an arbitrary government, while the nominal po sessors of power feel constrained to yield continual deferen to the popular voice. On the other hand, there may be a wri ten constitution, and all the administrative forms of a fr government, while a portion of the people are incapable understanding a single one of all the momentous questio which are submitted to their decision,—a portion, therefore, much governed by others, in all the votes they give, in all t dogmas they take up, and in all the party watchwords th shout, as the subjects of the sternest despotism are govern by their hereditary masters. The means of government m be different, but the abjectness and servility of the govern are as real in the one case, as in the other; and the factioni or demagog who inflames or wheedles, is as irresponsible the lord who commands. Now, in a republic, the number, proportion, of this class, who never think for themselves, a who therefore always act at the dictation of others; and wh as a necessary consequence, fall, by force of their own gra tation, into the hands of selfish and profligate men,—th number may go on increasing from year to year, until th become a majority of the whole; or, at least, until, in all cas of emergency, they hold the balance of power, while the for of the republic may remain unchanged,—nay, these very forms may be converted into a more efficient engine than ever before existed for wielding the selfish and irresponsible power which is the most execrable element in despotism itself. One after another, intelligent and conscientious men may drop out of the ranks, and their places be supplied by those whom ignorance and imbecility have prepared to become slaves, until, by a transition so gradual and stealthy as to excite no alarm, the nominal republic may become an actual oligarchy,—a government of a select few,—not, however, the selected best, but the selected worst. There is no antidote or preventive against such a national catastrophe but in the education of the whole people.

* * *

Travelers inform us that in some of the vast deserts of the Eastern Continent, the course of the wayfarers across the trackless waste is marked by the bleaching bones of mighty caravans that had perished on their way, in traversing the desolate expanse. Spread out upon the arid sands, or heaped in mounds these relics of the dead give warning of the dangers by which they had been overwhelmed. The pilgrim troop, or merchant company, as they pass along, and behold these eloquent memorials of others' fate, are admonished to press on with vigor, that they may reach the place of safety. Even thus, along the track of time, for thousands of years, do historic memorials,—like vast monumental piles, upon the right hand and upon the left,—make known to us the causes of the decline and fall of ancient and of modern republics. They fell thru the ignorance and debasement of the people that composed them. But for these, Greece, having revivified her spirit by the genius of Christianity, and turned her Pantheon into a temple of the living and true God, might, to this day, have spread far more than her ancient happiness and splendor over those beautiful regions where now the Mahommedan bears sway; and, but for these, Rome might have adopted the principles of that purer faith which was preached to her by the Apostle to the Gentiles and saved the world from the thousand years of unspeakable horrors, which the Dark Ages inflicted upon it. Happy will our young Republic be, if, forewarned by the perdition of others, she avoids their fate by avoiding the causes that incurred it.

* * *

The object of the Common School system of Massachusetts was to give to every child in the Commonwealth a free, straight, solid pathway, by which he could walk directly up from the ignorance of an infant to a knowledge of the primary duties of a man; and could acquire a power and an invincible will to discharge them. Have our children such a way? Are they walking in it? Why do so many, who enter it, falter therein? Are there not many who miss it altogether? What can be done to reclaim them? What can be done to rescue faculties, powers, divine endowments, graciously designed for individual and social good, from being perverted to individual and social calamity? These are the questions of deep and intense interest, which I have proposed to myself, and upon which I have sought for information and counsel.

* * *

The education of the whole people, in a republican government, can never be attained without the consent of the whole people. Compulsion, even if it were desirable, is not an available instrument. Enlightenment, not coercion, is our resource. The nature of education must be explained. The whole mass of mind must be instructed in regard to its comprehension and enduring interests. We can not drive our people up a dark avenue, even tho it be the right one; but we must hang the starry lights of knowledge about it, and show them not only the directness of its course to the goal of prosperity and honor, but the beauty of the way that leads to it.

In some districts there will be but a single man or woman, in some towns scarcely half a dozen men or women, who have espoused this noble enterprise. But whether there be half a dozen or but one, they must be like the little leaven which a woman took and hid in three measures of meal. Let the intelligent visit the ignorant day by day, as the oculist visits the blind man and detaches the scales from his eyes, until the living sense leaps to the living light.

Let the zealous seek contact and communion with those who are frozen up in indifference, and thaw off the icebergs wherein they lie imbedded. Let the love of the beautiful childhood, the love of country, the dictates of reason, the admonitions of conscience, the sense of religious responsibility be plied, in mingled tenderness and earnestness, until the obdurate and dark mass of avarice, ignorance, and prejudice shall be dissipated by their blended light and heat. . . . .

The Board, therefore, have no voice, they have no organ, by which they can make themselves heard, in the distant villages and hamlets of this land, where those juvenile habits are now forming, where those processes of thought and feeling are, now, to-day, maturing, which, some twenty or thirty years hence, will find an arm, and become resistless might, and will uphold, or rend asunder, our social fabric. The Board may,—I trust they will,—be able to collect light and to radiate it; but upon the people, *upon the people*, will still rest the great and inspiring duty of prescribing to the next generation what their fortunes shall be, by determining in what manner they shall be educated. For it is the ancestors of a people who prepare and predetermine all the great events in that people's history; their posterity only collect, and read them. No just judge will ever decide upon the moral responsibility of an individual, without first ascertaining what kind of parents he had;—nor will any just historian ever decide upon the honor or the infamy of a people, without placing the character of its ancestors in the judgment-balance. If the system of national instruction, devised and commenced by Charlemagne, had been continued, it would have changed the history of the French people. Such an event as the French Revolution never would have happened with free schools. The mobs, the riots, the burnings, the lynchings perpetrated by the *men* of the present day, are perpetrated because of their vicious or defective education, when children We see, and feel, the havoc and the ravage of their tiger-passions, now, when they are full grown; but it was years ago that they were whelped and suckled. And so, too, if we ar derelict from our duty, in this matter, our children, in their turn will suffer. If we permit the vulture's eggs to be incubate and hatched, it will then be too late to take care of the lambs. . .

. . . . In his lecture before the American Institute, he says page 16, after giving an analysis of the sources of pleasur to a child, among which he includes form, "In regard to all th other sources of pleasure—beauty, motion, music, memory– the alphabetic column presents an utter blank. There stand in silence and death, the stiff perpendicular row of characters lank, stark, immovable, without form or comeliness, and, as t signification, wholly void. They are skeleton-shaped, bloodless, ghostly apparitions, and hence it is no wonder that the chi dren look and feel so death-like, when compelled to face them

. . . . If, then, in learning, all wills and desires, all costs labors, efforts, of others, are dependant, at last, upon the wi of the learner, the first requisite is the existence in his mind c a desire to learn. Children, who spend six months in learnin the alphabet, will, on the playground, in a single half day o moonlight evening, learn the intricacies of a game or sport– where to stand, when to run, what to say, how to count, an what are the laws and the ethics of the game;—the whole requiring more intellectual effort than would suffice to learn hal a dozen alphabets. So of the recitation of verses, mingled wit action, and of juvenile games, played in the chimney-corner And the reason is, that for the one, there is desire; while agains the other, there is repugnance. The teacher, in one case, i rolling a weight up hill, in the other, down; for gravitation i not more to the motions of a heavy body, than desire is to th efficiency of the intellect. Until a desire to learn exists withi the child, some foreign force must constantly be supplied t keep him agoing; but from the moment that a desire is excited, he is self-motive, and goes alone. . . .

. . . .But one thing should be insisted upon, *from* the beginning, and especially *at* the beginning. No word should be taught, whose meaning is not understood. The teacher should not count out words faster than ideas. The foundation of the habit should be laid, in the reading of the very first lesson, of regarding words as the names of things; as belonging to something else, and as nothing by themselves. They should be looked at as a medium, and not as an end. It is as senseless for a child to stop at the sign of the printed word, in reading, as it would be to stop at the sound of the spoken word in conversation. What child would not repel the intercourse of a person, who spoke to him only words of which he knew nothing? No personal charms would be long sufficient to compensate for speaking to a child in an unknown tongue. How is it possible, then, that an active-minded child should not disdain the dreary pages of a book, which awaken no thought or emotion within him;—which are neither beauty to the eye, nor music to the ear, nor sense to the understanding? As reading is usually taught, the child does not come into communication with his lesson, by any one of all his faculties. When a child looks into a mirror, or at a picture where the perspective is strikingly marked, he will reach around to look behind the mirror, or behind the picture, in hope of finding the objects in the place where they appear to be. He cares nothing for the mirror, nor for the canvass;—his mind is with the things presented to his senses. In reading, the page should be only as the mirror picture, thru which objects are beheld. Then there would be far more delight in looking at the former, than at the latter; because words can present more circumstances of variety, beauty, life, amplitude, than any reflecting surface or dead picture. Should we not revolt at the tyranny of being obliged to pore, day after day, upon the outer darkness of a Chinese manuscript? But if the words are not understood, the more regular formation of the Chinese characters gives

them a decided advantage over our own letters. Give a c
two glasses, precisely similar in every respect, except that
shall be opaque, the other a magnifier. Thru the former n
ing can be seen, and it therefore degenerates into a baul
but the latter seems to create a thousand new and brilli
objects, and hence he is enamored of its quality. There
precisely the same difference in the presentation of wo
Yet we punish children, because they do not master wo
without any regard to their being understood. . . .

. . . . After experimenting with every scheme, I believe
shall be driven back to a single resource;—and not reluctan
for that resource is sure and adequate. Language is to
learned, where it is used; as skill in handling the impleme
of art is acquired by practicing with them upon their app
priate objects. It is to be learned by conversation, and by
daily reading of such books, as, with the aid of free questi
ing on the part of the pupil, and full explanations on that
the teacher, can be thoroly mastered. The ideas of the lear
are to be brought out and set, objectively, before his own e
like a picture. . . .

. . . . In Scotland, the Spelling Book is called the *S*
Book, and we ought to adopt that appellation here, for, a
is often used with us, it does cast a spell over the faculties
children, which, generally, they do not break for years;— a
oftentimes, we believe, never. If any two things on ea
should be put together and kept together, one would supp
that it should be the idea of a thing and the name of that thi
The spelling book, however, is a most artful and elabor
contrivance, by which words are separated from their meanin
so that the words can be transferred into the mind of the pu
without permitting any glimmer of the meaning to accomp
them. A spelling book is a collection of signs without the thi
signified;—of words without sense;—a dictionary without defi
tions. It is a place where words are shut up and impoun
so that their significations cannot get at them. . . . In tea
ing children words, in the earlier stages of education, the obj

they designate should, as far as possible, be presented. Where the object is familiar to the child, but is one which is not or cannot be present or in sight, then, let it be referred to, so that there shall be in the mind of the child a conscious union of the name and object, as in case of the words *river*, *boat*, *moon*, etc. If the object itself cannot be exhibited, and is not familiar, so as to be referred to, then some representation or model of it should be presented. But let a preference always be given to the object itself, or to the recollection of it, when known. In the school of Pestalozzi, a series of engravings was prepared, representing a variety of objects, whose names, structure, and use, the children were to learn. One day the master having presented to his class the engraving of a ladder, a lively little boy exclaimed, "But there is a real ladder in the court-yard; why not talk about that rather than the picture?" "The engraving is here," said the master, "and it is more convenient to talk about what is before your eyes, than to go into the yard to talk about the other." The boy's remark, thus eluded, was for that time disregarded. Soon after, the engraving of a window formed the subject of examination. "But why," exclaimed the same little objector, "why talk of this picture of a window, when there is a real window in the room, and there is no need to go into the court-yard for it?" In the evening both circumstances were mentioned to Pestalozzi. "The boy is right," said he, "the reality is better than the counterfeit;—put away the engravings and let the class be instructed in real objects." This was the origin of a better mode of instruction, suggested by the wants and the pleasures of an active mind. Put away the engravings, we respond, where the real objects can be had or referred to. If it be impracticable to exhibit the real object, as it is to show a ship to an inland child, then present the picture, or what is better, a model.

Again, the things, the relations, of art, of science, of business, are to the mind of a child, what the nutriment of food is to his body; and the mind will be enervated, if fed on the names of things, as much as the body would be emaciated, if fed upon the names of food. Yet, formerly, it was the almost universal practice,—and we fear it is now nearly so,—to keep children two or three years in the spelling book, where the mind's eye is averted from the objects, qualities, relations of existing things, and fastened upon a few marks, of themselves wholly uninteresting.

The gorges and marshy places in the Alps and Pyrenees produce a race of idiots, known, technically, by the name of *Cretins*. These beings are divided by physiologists into three classes. The Cretins of the first degree are mere blank idiots. But the Cretins of the third degree have great facility in acquiring languages. They can be taught so as to translate the words of one language into those of another, tho without the slightest comprehension of the meaning of either; and wha is more remarkable, they will, so far as the rhyme is concerned make good poetry. If words are taught to children for years during the most active part of their life, without any of the ideas they are intended to convey, ought we to be surprised, if much of our public speaking and popular literature should be the production of Cretins of the third degree?

First, and chiefest, in reading, let the lesson be understood; its words, its phrases, its connections; its object, if it have any object; if not, it is not proper for a reading lesson. .

. . . . And after such teachers as we employ are introduced into the schools, they address themselves to the culture of the intellect mainly. The fact that children have moral natures and social affections, then in the most rapid state of development, is scarcely recognized. . . .

. . . . I learn, also, that, with scarcely a single exception in the whole State, the scholars are kept in spelling classes, or they spell daily from their reading lessons, from the time of their earliest combination of letters, up to the time of their leaving school; and yet, if testimony derived from a thousand sources, and absolutely uniform, can be relied on, there is a Babel-like diversity in the spelling of our language. . . .

(To be continued.)

Systems of Public Education

Educational Progress in Denmark

DENMARK has had these last forty years a system of continuation schools which have rapidlly spread over the other Scandinavian countries, have been introduced into the United States, and are the envy of Germany and every other nation at all acquainted with the work they are doing. More recently, in the region of Secondary Education, there has been an equally striking development. Danish Secondary Schools, both Classical schools and Realskoler, are most indebted to the example of their nearest neighbor, Germany. But the imitation of Germany naturally stopped in 1864; and the development in a freer and non-German direction, which had commenced before (a development amid circumstances curiously like our own), has been going on since at a greater pace. The development is chiefly remarkable in two directions—the continuation schools for adults (Folkehöjskoler) and the Realskoler.

The Folkehöjskoler, or People's High Schools, with their related technical or agricultural schools, have increased since the war in 1864 more than tenfold. And whilst the Latin schools which prepare for the University have not increased since 1880 more than fifty per cent., the Realskoler, which prepare for the minor professions, for many branches of the Civil Service, and for the higher departments of business, have in the same period increased over 400 per cent. The means and the method of the increase along these two lines are alike remarkable.

ELEMENTARY EDUCATION.

Before 1878 the cost of the elementary schools in Denmark fell entirely upon the local authorities, but since then the State has devoted increasing amounts to the augmentation of the teachers' salaries in poor schools. The curious part of the relation is that the State claims in return for its ever increasing grants no general right to inspect the instruction given in the

are able to pay it,
own methods of in
of Kristen Kold.
lozzian, tho it does
influenced by Pestal
and disposition, and
impart a quantum of
opponents said of the
school, for all the tim
stories. But as the ye
have greatly influence
have become less mech
their attractive feature
knowledge and aptitud
life. About one-half o
Folkehöjskoler and the
most of the teachers in th

The State makes yea
teachers in elementary sc
in the various seminaries
except those in the Latin

CONTINU

To the elemen

still too young to attend the Folkehöjskoler. The municipality of Copenhagen has already established evening schools in most of the eighty-eight technical schools in the country towns where there are evening classes for those whose technical education is hindered because their general education is defective.

The continuation schools in the country are of two kinds. Those that have a separate existence from the ordinary schools are relatively few in number. Those held in the elementary schools and taught by the school staff (Aftenskoler or evening schools) are of greater importance. A fee, tho a low one, is generally charged.

Scattered over the country parts of Denmark, often at some considerable distance from a railway station, are adult boarding schools or residential colleges attended by students of the peasant or yeomen class for the most part, the greater number between the ages of eighteen and twenty-five, tho many are still older. The young men attend from the beginning of November until the end of March or April, and the young women during May, June, and July; but at Askov in S. Jutland, the oldest and most advanced of these schools, there is provision for a winter session for young women as well as for young men. There are besides these people's high schools, five agricultural and two horticultural schools on similar lines, as well as seven schools which are partly high schools and partly agricultural schools.

The idea of the people's high schools is entirely due to Bishop Grundtvig (1783-1872), Danish poet, ecclesiastical leader, theologian, and historian. Next came Kristen Kold with his school in the center of Funen; and after him a band of earnest thoughtful theological students, who were infected by Grundtvig's enthusiasm, and gave their lives to high school work. These latter are at the present moment the leaders of the movement in Denmark. One of them, Mr. Ludvig Schröder, of Askov, well expresses the precise nature of Kristen Kold's contribution to the success of the high school-movement. "Kristen Kold," he says, "contributed more than any one else to prepare the way for the influences of the high school in the large broa strata of the population. He also set the example of makin the life at school as home-like as possible for the young peopl who were brought together there. Finally, it is he who, havin engaged women teachers in his school, began to collect youn women as pupils in summer, while the winter was given up t the young men. Grundtvig sketched the plan, but Kold lai the foundation securely and well by showing that the school must first try to enliven the youth and after that to enlighte them."

The full course of a typical school of this kind embraces tw sessions. I will describe here a day in the first year of the me students. Breakfast is at 7:30. From 8 to 9 there are conversations in physics two days in the week; historical geometr two days, *i. e.*, not Euclid, but geometry, taken in the order i which its different portions were discovered. In this way th subject is better approached by beginners, and the number o failures is reduced. Systematic geometry comes later. Statistics, two days. From 9 to 10 Danish, four days; conversatio in universal history, two days. At 10 o'clock there is a brea of fifteen minutes. From 10:15 to 11:15, history of the North three days; historical physics, three days. From 11:30 t 12:30 daily is given to gymnastics on Ling's system, care bein taken in each of the schools to have a good gymnasium, tha also serves as the chief assembly room of the school. In this for instance, the afternoon service on Sundays is held; and th Christmas tree upreared. From 12:30 to 1 comes dinner, wit an hour and a half of drawing or bookkeeping after. To thi succeeds half an hour's singing practice and a quarter of a hour for coffee. From 3:15 to 4:15 English, two days; conversations on history of the world, two days; hygiene, one day Bible lesson, one day. From 4:30 to 5:30 geography, two days arithmetic, two days; conversations in historical geometry, two days. From 5:45 to 6:45 lectures on universal history t all the students, both men and women.

It is plain then that these schools are schools of liberal education or of the elements of it. And when it is considered that the students do not give merely the fag end of the day to such work, but are set free for five or six months together to devote their whole time and thoughts to their work and to their intercourse with one another, the schools may in the aggregate be well called the best poor man's university the world has yet seen.

Great as was Grundtvig's penetration in seeing that such schools were both possible and necessary for his country's welfare, and great as was his courage and that of his helpers in establishing them amid so many difficulties, they could not have attained their present success nor reached so widespread a development, had it not been for the simple, inexpensive way in which the schools are carried on, and for the fact that the farm laborers in Denmark own, for the most part, the land which they till.

On emerging from the central railway station at Copenhagen almost the first object one sees is an obelisk in the middle of the street, which commemorates the freeing of the Danish serfs so recently as 1788. A few years after this, while Europe was plunged in war, Denmark was busy raising food for the combatants at prices so remunerative that the men who just now had been serfs soon found themselves in possession of the lands they tilled. And now at the present moment there are in Denmark about 250,000 farms, ranging from 110 to seven acres each, of which more than ninety-four per cent. are farmed by their owners. It is the self-reliant independence of these Danish yeomen rather than any peculiar excellence in their education at the elementary school, or any ease in their worldly lot (for many of them live harder lives than our own laborers), which accounts for the avidity with which they seek knowledge for its own sake.

But, of course, these schools could not have their present wide development unless they were organized in the very simplest way. Sixty dollars will cover the expenses of a student for six months at any of these seventy-nine schools. That sum will pay not only for board, lodging, and instruction, but also for traveling to and fro, and for such additional items as books, tobacco, oil for lamp, laundress, and so forth. But the student has to bring with him all his own bedding, as the school provides nothing but a bedstead. Even this sum would prove forbidding if the State did not lend a helping hand. The poorer half of the students readily obtain thru the county council a bursary that covers one-half their expenses; and the State also makes handsome grants on a definite scale to the principals themselves, spending upon these schools more than twice as much as it does upon the Realskoler. Mr. Alfred Poulsen, principal of a high school at Ryslinge, in Funen, has this to say on the influence which these schools have had on the economical well-being of the country.

> From the year 1870 to 1880, agriculture, which is the principal industry of our country, underwent a serious crisis. The old-fashioned modes of culture did not suffice any longer. The exportation of corn was the main industry of farmers; but the price of corn fell, and agriculture was on the brink of ruin. Then it was that a perfect revolution was brought about in a few years. From the production of corn and meat, the country now turned to dairy work, especially the manufacturing of butter. This was the first reform. The second one came in the year 1880.
>
> It was very soon understood that, if we were to obtain good prices for our butter, production of a better and more homogeneous quality and in greater quantities would be necessary. Then arose, as by magic, the large co-operative dairies, which get their milk from larger districts, ordinarily from a whole parish. By this mode of proceeding it was rendered possible for our butter to gain its good reputation in the English market. The quickness and precision with which this change has carried out is due partly to the leading agriculturists of our country and partly to the high schools. By their help a set of young energetic men were brought up to understand the importance of the new ideas; and to secure the success of the new principle of co-operative manufacture, some of them, after a very short course of instruction, were able to undertake the responsible work as managers of the larger and smaller co-operative dairies.
>
> If you have ever tasted Danish butter you have come in a sort of contact with the schools I am speaking of, for the greater part of the men and women who manufacture this butter are pupils of the high schools.

At the agricultural schools the better half of the students, those who seize most completely and apply most readily what they learn there, have first been students of history and literature in the ordinary high school. The Danish butters, like Opie's colors, are good, because "they are mixed with brains, sir!"

There must be now 150,000 Danish men and women who have passed thru these schools for humble folk; and as the spirit of comradeship amongst them is very strong, they have at the larger schools yearly gatherings of old students of a joyous and inspiriting character. When they travel, too, they like to meet old friends and to be entertained in a simple, homely manner suited to their means. And so there have sprung up in the chief towns of Denmark high school homes or simple hotels, where they and their friends, or any one that will, may stay when away from home. I have stayed, from time to time, in these homes. A "home" of this kind usually is a modest hotel and university settlement rolled into one. The reading-room and reference and lending libraries are used not only by the guests, but also by the High School Union, composed of young men and women in the neighborhood. There are besides two or three lectures on literary and social subjects in the week, and one for workmen on Sunday afternoons in a larger room a few yards away. Tho none of these meetings are meetings for worship, they do not on the other hand keep religion at arm's length, for they begin and close with bright stirring hymns of a Christian character sung to familiar tunes. Sometimes even on Sunday evenings there is a dance, but with no special dressing for it, and with no provision of intoxicants. And if at the close of the dance a hymn be sung before going home, no one is aware of any incongruity.

The relation in which the State stands to these schools, which are nearly all private schools in the English sense of that word, is very remarkable. Besides the money expended yearly in bursaries for the poorer students, a considerable sum is paid to the principals and owners of the schools in the following way:—

1. A grant of 300 kroner is given every year to each agricultural school and peasants' high school.

2. Ten kroner is paid to the principal every year for each student in attendance.

3. The State may pay one-third of all the expenses of the school as far as salaries, books, and apparatus are concerned, if there be funds enough. No school can get more than 3,000 kroner a year if a special concession is not given, and the whole amount of the grants must not exceed 120,000 kroner, special grants included, which latter must not exceed 15,000 kroner. To get a grant a school must have worked for one year at least, and have been frequented by at least ten pupils for the whole year.

When we notice the provisions that are absent from the above regulations, the wonder grows. In the case of the private Realskoler the State fixes the curriculum, conducts a leaving examination, keeps a watchful eye on the quality of the staff, and publishes details on every point of school management which the public have any right to know. In the case of these people's high schools it does none of these things. The curriculum was fixed by Grundtvig in his letter to the King; examinations the schools will not endure even if they lose their grant. The competition between school and school would seem to have been found sufficient guarantee for the excellence of the staff, and if full particulars with regard to school statistics have been published, it is not the State that publishes them, but the schools themselves. The only guarantee the State has that it gets value for its money is the report of its inspector. The sole aim of these seems to be to keep the Government informed from year to year of the condition and progress of the schools. The inspectors do not dream of exercising any control. So wide a freedom can be justified only by large and lasting success. It seems incontestable that, given men with their heart in their work, like these Danish high school teachers, the State profits from its grants to them in inverse ratio to the amount of interference in their work.

(To be continued.)

Pedagogical Discussion

Poetry as an Atmosphere, a Discipline, and a Study

It is an indisputable and patent fact that people are interested in literature, whether the stuff which they enjoy is good or bad. The universal interest in literature, in its narrow sense of *belles lettres*, shows that it really is co-extensive with life. It is unfortunate that after a generation of school solicitude there should still be such a demand for mean and vapid and pretentious matter. The school, however, has not been entirely unsuccessful, and there are many hopeful signs of a growing taste for better things. But the schools have not done enough, and teachers have often set about their business in the wrong way.

We are led into many difficulties owing to our habit of dividing up our system of knowledge into provinces or subjects, and assigning special "studies" to special areas. The truth is that several "subjects" which figure on a time table are often only different ways of looking at the same facts of experience. Literature covers the largest field; and poetry is a way of looking at things more generally applicable, more "universal," than other ways, and of expressing the associated emotions in a marked rhythm.

We are born with a readiness to respond to certain stimuli, and in particular we notice a sensibility to light and sound. A tiny child delights in recurrent sounds, and this is the basis of the liking for *meter*, which lies at the very core of the liking for poetry in early stages of development. Shock or pain expresses itself from the first in *dis*orderly movements and sounds—particularly sounds. Delight and the passion of intelligent beings, are expressed mostly in movements and sounds of decided rhythm.

The most fortunate children are surrounded by happy sounds—modulated, regular, pleasing. They learn nursery rhymes long before the words have any meaning, or in despite of their lack of rational meaning. As far as possible, the effects must be joyous. "A babe is fed with milk and praise." In the meanest circumstances the young child tries to find an ordered delight by way of "play."

Poetry is "a way of seeing things." It is a truer way than any other, because it is more compendious and because it represents the most extensive human aspect of things. Its very compendiousness makes it essentially unanalyzable. The highest forms of poetry fix the whole experience of a nation, or even race. Youth is the best period for making the mind accessible to poetry, because it is sincere, less conventional than age. Unless we acquire early the habit of dealing with facts imaginatively, and acquire also the liking for the habit, facts have a meaning for us limited strictly and solely by the passing needs of the moment; they are small, and without spiritual significance. We must use the child's natural truthfulness to make him early in life look on things "on a big scale," imaginatively.

From the earliest cultivation of the love of mere sound we pass to poetry with more "content"—action, first of all bizarre and irrational, and conduct unmoral—until the child looks for reasons, and requires something in character to praise or blame. This constitutes the passage to epic and heroic poetry, and to the ethical and "cautionary" story. The next stage is wider, and comprises the cultivation of a taste for the true lyric and for the simpler forms of drama.

All along we should give the children occasional opportunity of reproducing rhythmic effects which they have met and liked, and as early as ten or eleven the mere elements of meter and scansion should certainly be taught. This is the more important because it soon becomes necessary to infect your pupils with the feeling that there is something in poetry—a marriage of form and matter—which no analysis can explain or reproduce. They must love it without being able to account, in mechanical terms, for their delight. It is just this that makes the free use of poetry so important at a time when investigation and proof are supposed to play such an important part in discipline. Short of hard philosophical and subtle dramatic poetry, children may well be got to like and to learn matter which they can only completely understand in very mature years. The thing read or learnt should be composed on a simple metrical scheme, and should be a *whole*, and not a snippet.

We may begin quite early with Shakespeare, if we read a whole play, and do not explain too much. And we ought not to waste this precious, and indeed sacred, time of youth by setting children to learn and represent ephemeral "musical comedies," and such like. They should have the best, something to last—"A Midsummer Night's Dream," not "Les Cloches de Corneville."

The examination of poetic diction, of the meaning of "imagination," of "key," and so forth, are legitimate and most profitable parts of the study of poetry, it being always remembered that the chief purpose of poetry is *delight*. The history of poetry and of the poets is of no consequence whatever unless, and in so far as, it enables an advanced pupil to understand and enjoy his text. Until the last stage of school life these things are generally out of place.

P. A. Barnett.

[Abstract of a lecture to the London College of Preceptors.]

The "equal pay for men and women" arguments, raised to the surface recently, reveal a rather peculiar misconception of economic facts. Experience has shown that even with the larger pay held out to men the number attracted by it is altogether too small for the good of education. The reduction of this pay would, therefore, seem to be altogether out of the question. Far better would it be if the salary were increased so as to secure the services of more and stronger men. This matter being attended to, there is no reason why the men should object to having present discriminations between men women wiped out.

Teachers' Examinations

The questions given in this department have been selected from papers used at recent teachers' examinations for certificates in the State of New York. The answers are necessarily suggestive rather than final, tho their accuracy can be depended upon as far as they go.

ALGEBRA.

1. Factor a^4-1, $9c^2-6cd+d^2$, $a^2b-2bd+a^2c-2cd$.

2. Simplify $\dfrac{2x+y}{x+y}-1-\dfrac{y}{y-x}+\dfrac{x^2}{y^2-x^2}$

3. Solve $\dfrac{x}{a}-\dfrac{x}{a-b}=\dfrac{1}{a+b}-\dfrac{x}{b}$

4. Expand $(2c-d^2)^5$ by the binomial formula.

5. Multiply $4x-6x^{-1}$ by $2x+3x^{-1}$.

6. Reduce the following quantities to simplest form: $3\sqrt[3]{\frac{5}{6}}$; $\dfrac{5+\sqrt{3}}{2-\sqrt{3}}$

7. Solve $\sqrt{3x-3}=\sqrt{x}+1$

8. Solve $\dfrac{12}{x+3}-\dfrac{9}{x-3}=-\dfrac{5}{3}$

9. Solve $\begin{cases} x^2+y^2-xy=84 \\ x-y=2 \end{cases}$

10. A and B have the same salary. A saves ⅙ of his salary; B spends $225 a year more than A and at the end of three years finds himself $225 in debt. Find the salary of each.

ANSWERS.

1. $a^4-1=(a+1)(a-1)(a^2+a+1)(a^2-a+1)$, $9c^2-6cd+d^2=(3c-d)(3c-d)$, $a^2b-2bd+a^2c-2cd=(b+c)(a^2-2d)$.

2. $\dfrac{y^2}{x^2-y^2}$ ¶

3. $x=\dfrac{ab(a-b)}{a^2-2ab-b^2}$

4. $(2c-d^2)^5=(2c)^5-5(2c)^4(d^2)+10(2c)^3(d^2)^2-10(2c)^2(d^2)^3+5(2c)(d^2)^4-(d^2)^5=32c^5-80c^4d^2+80c^3d^4-40c^2d^6+10cd^8-d^{10}$.

5. $8x^2-18x^{-2}$.

6. $\frac{1}{2}\sqrt[3]{180}$; $13+7\sqrt{3}$.

7. $x=4$ or 1.

8. $x=6$ or $-7\frac{4}{5}$.

9. $x=10$ or -8.
   $y=8$ or -10.

10. $900.

DRAWING.

1. Name the six standard colors with their complementaries. Give an example in nature to illustrate dominant harmony.

2. Define and illustrate the terms "light and shade," "light and dark."

3. Define and illustrate linear perspective, aerial perspective.

4. Make a freehand sketch of a building in angular perspective, assuming the eye level to be about half way up the building. Show at least one vanishing point.

5. Make a careful drawing of the Greek anthemion, the drawing to be five inches high.

6-7. Make a light and shade drawing of a group of objects, one of which shall be a book. Show good grouping.

8. Construct, with instruments, a regular octagon.

9. Draw two views (projections) and the developed surface of a cone three inches high and two inches in diameter.

10. Make a complete working drawing, two views (projections) and a section, of a glass tumbler. Outside diameter at the top three inches, at the bottom two and one-half inches; height, three and three-quarter inches; thickness, one-eighth of an inch. Scale full size.

ANSWERS.

1. Red and blue-green, orange and green-blue, yellow and violet-blue, green and violet-red, blue and orange-yellow, violet and green-yellow.

The tints and shades of yellow in the blossom of the nasturtium is an example of dominant harmony.

2. (*a*) "Light and shade" refers to the effect that light has on an object, its shade and shadow.

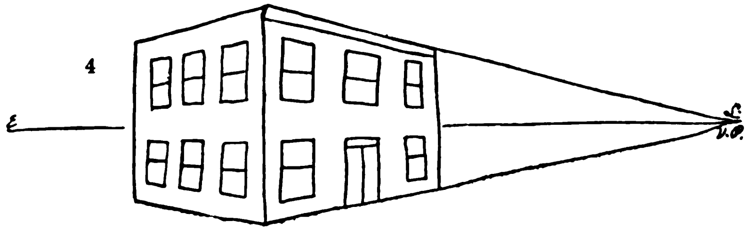
(*b*) "Light and dark" refers to the tone values in a picture, without regard to the effect of light, shade, and shadow.

3. Linear perspective deals with the relative shape and size of objects, their foreshortening, convergence, and vanishing points.

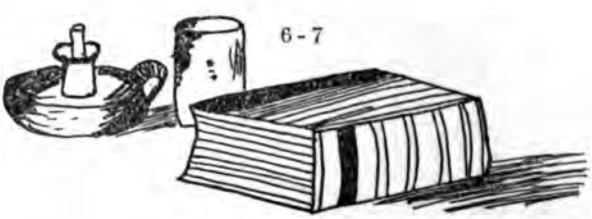
Aerial perspective deals with the appearance of objects as affected by atmospheric conditions. It also refers to color values.

An example of linear perspective is given in answer to question four. Aerial perspective, a green object would be represented by a darker tone than a yellow object.

4

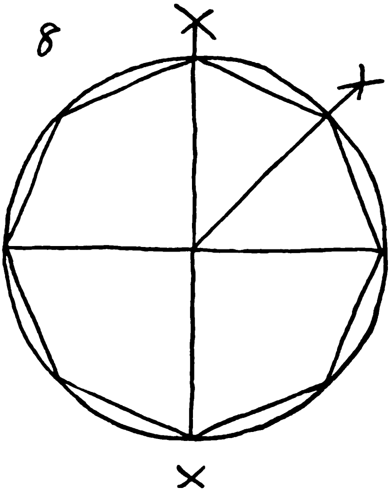


5

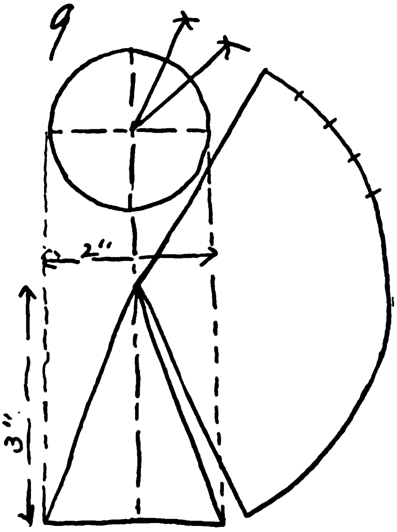


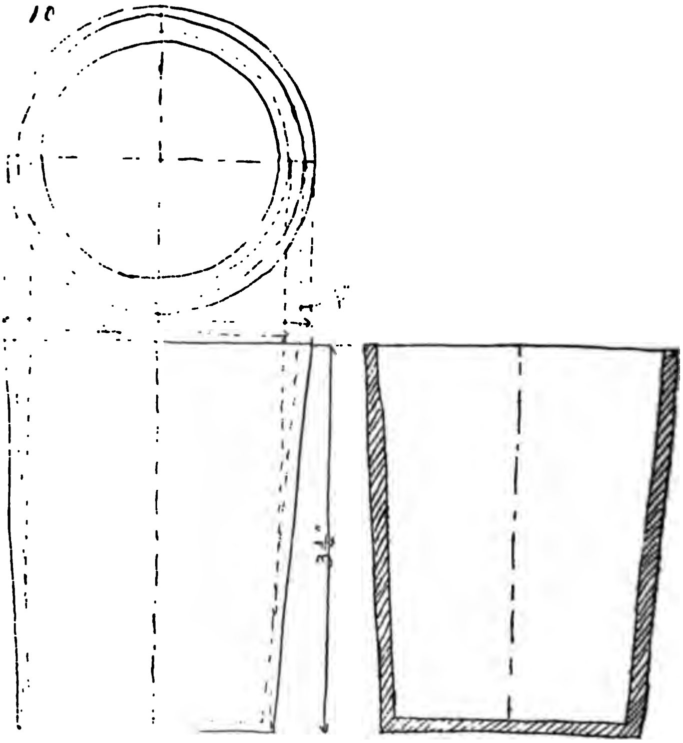
6 - 7

8



9




10
3½"

Teach the Parents of the Children

An Antidote to Marital Estrangements

HOME THOUGHTS

By "C." of the New York "Evening Post"

2 vols. [illegible] pages each. Cloth. Price [illegible] each
Of special value to teachers [illegible]

Issued in book form at the request of many readers of the Post. These papers have everywhere awakened a sympathetic chord in the minds of men and women. They are marked by simple sincerity in the treatment of elemental conditions that make for happiness in the home.

Hamilton Mabie says: "[illegible]"

New York Times says: "[illegible]"

Some of the Topics

A Neglected Subject of Education
Companionable Children
What Constitutes a Dull Child
Children as Our Judges
The Education of the Citizen
Purpose and Will
Use of Plain Speech
The Development of Manhood
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

A. S. Barnes & Co., Publishers, New York

Joel Dorman Ste

"Teacher, Writer, Soldier and Philanthr

Prepared by Mrs. [illegible]
12mo. Illustrated. [illegible] pages. Cloth.
Price, [illegible] (Postpaid [illegible]

Mrs. [illegible] has [illegible] and the thousands of friends of [illegible] and author will welcome this kindly tribute [illegible] memory.—*St. Louis Globe-Democrat.*

A simple life and story that cannot be [illegible] commended to the reading of every [illegible] teacher in America.—*Boston Evening Post.*

He put into operation, as principal of the [illegible] Free Academy, a new form of school [illegible] *Detroit Free Press.*

Another incident of the [illegible] made [illegible] by high [illegible] *Herald.*

The life record of a man who [illegible] ostentatious [illegible] upon the [illegible]

Educational Foundations

Stanford University Library
MAY
2
1907

JUNE
1907

VOL. XVIII
NO. 10

DEPARTMENT OF
EDUCATION
AUG 8 1907
LELAND STANFORD
JUNIOR UNIVERSITY

[illegible]py, 15 Cents a Copy

BLISHED MONTHLY BY A. S. BARNES & COMPANY
[illegible] NEW YORK CITY

Grading, Promotion, and Individual I
tion. Magdalena [illegible]

Medical Inspection

GREAT TEACHERS

Thomas Arnold. Joseph Payne

EDUCATIONAL CLASSICS

Extracts from Horace Mann's Writings

SYSTEMS OF PUBLIC EDUCAT

Educational Progress in Denmark. II
Thornton

TEACHERS' EXAMINATION

Index to Volume XVIII

EDUCATIONAL FOUNDATIO

[illegible]

Educational Foundations

OSSIAN H. LANG, Editor

Vol. XVIII **JUNE, 1907** **No. 10**

EDUCATIONAL FOUNDATIONS for 1907–8 will have a series of educational biographies including Socrates, Comenius, Rousseau, Pestalozzi, Froebel, Herbart, Horace Mann and Colonel Parker. The central ideas for which these great teachers stand will be concisely set forth. Their influence upon their time will be explained and their historical significance for education shown. The series will represent a unique contribution to the history of education.

The course of study will be practically discussed in a series of articles by W. H. Conners. The actual conditions in a small school system will be fully considered, and a plan will be presented that has been tested and is now in operation.

Dr. C. B. Gilbert's very helpful discussion of the various studies in the curriculum will be continued in the new volume. The new series will be found most thought-provoking, and one that will give to teachers a philosophical and at the same time solidly practical survey of the component parts of the course of study.

The Department of Educational Classics will have significant selections from the masters in education.

There will be at least three instalments of Dr. J. M. Rice's series on Educational Research.

The General Culture Courses will be revived. English and American Literature will form the central topic. There will be articles by distinguished critics on Tennyson, Robert Browning, Emerson and Lowell. "George Eliot as A Social Reformer" will be a special topic. Two articles, one written by Oliver Wendell Holmes and the other by Sidney Lanier, the copyright of which is held by the publishers of EDUCATIONAL FOUNDATIONS, will be included in the course. Dr. Holmes' paper gives a critcal review of Arnold's "Light of Asia"; the one by Sidney Lanier treats of "A Forgotten English Poet."

The September number will be issued at an early date. Full announcements of the course for the new volume may be obtained of the publishers.

Start with Sense-Impressions

THE PESTALOZZIAN PRINCIPLE.

THE principle which requires that teaching should be addressed to the perceptive faculties of the child, is as old as mankind. From the beginning of time it has been the guide of rational mental development. It was the principle upon which was based the first lesson in natural history recorded in the good Book. There we read: "Out of the ground the Lord God formed every beast of the field, and every fowl of the air; *and brought them unto Adam to see what he would call them; and whatsoever Adam called every living creature, that was the name thereof. And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field.*" Unfortunately, this principle was not always adhered to by the instructors of youth. A bookish race grew up that sought their salvation in written and printed volumes. The instructors labored under the impression that the masters of antiquity had exhausted the wisdom that nature could teach and pointed to the written testaments of them as the key to all knowledge. Now and then some inspired genius pointed to the contemplation of nature's works as the real source af knowledge, and boldly condemned traditional verbalism and hollow book-learning. But neither the sarcasm of Rabelais, nor the reasonings of the Bacons, of Montaigne, Campanella, and other intellectual giants, nor the agitations of Ratich, and our Grand Master Comenius, nor the revolutionary procedure of Basedow and Rousseau, succeeded in overthrowing the unnatural methods of teaching. The time was ripe. And so it happens that the glory of having compelled teaching to address itself to the perceptive powers of the child, is credited to Pestalozzi. He could truly say of himself, "If I look back and ask myself, What is it that I have done for elementary instruction? I find that *I have established the highest principle of instruction by recognizing in sense-perception the only basis of all knowledge.*"

Without detracting one particle from the honor due to the older masters of our profession, we may call Pestalozzi the father of the principle of sense-perception. His influence made it an unalterable law of our didactic code. He carried his point, mainly because he set aside everything else and concentrated his efforts on the development of the one truth that instruction must proceed from sense-perception to attain the end that it labors for. But, he might still have failed in his endeavors, were it not for other factors that came to his assistance.

Basedow's and Rousseau's agitations had stirred up the educational world to realize the necessity of a thoro reform of the schools. The thoughts of Comenius were revived and brought before the people in a new form. "Nature must be our guide in education," became the watchword of the day. The teachers awoke from their slumber. "Natural, most natural," and "only, most natural" methods were concocted. It became a fad to teach "according to nature." Any one who had anything to say on that subject found a hearing. Pestalozzi spoke and was also listened to, and soon the educational world began to recognize that what he had to say was of greater worth than all the "natural methods" of the pedagogic penny-a-liners. Profound thinkers became interested in his ideas and began to study, to investigate, to work them out, and to call attention to them in lectures and writings. The teachers were convinced that Pestalozzi had pointed out a sound psychological foundation for instruction by proclaiming sense-perception to be the real source of knowledge and mental development. Thus the principle was introduced, found recognition, and was accepted.

Pestalozzi's rule revolutionized the methods of instruction from the kindergarten thru the university. "Teach in accordance with psychological laws," is an outgrowth of the Pestalozzian idea.

OSSIAN LANG.

The Art of Seeing

THE lack of observation is coming to be regarded as great evil of modern education, and hence the importance of "Nature study," the value of which as a element in education lies in its witness to the Art o Seeing, wherein lies also the utility of art as an educationa agency. For what we see and how we see makes all the difference to our mental equipment, and goes to determine not onl success in life, but also the development of the higher facultie of our nature.

Of all the sense-organs the eye is the most delicate, the mos complex, the most capable of variation. One has only to recal the fact that the number of fibers in the optic nerve amount to something like 250,000, each of which is capable of innumerable degrees of sensation, to realize what possibilities exist i the organ of sight as a source of knowledge of the world of phenomena. The art of seeing with sagacity and discernment is at least in its highest developments, one of the subtlest of mental processes. Into it enter a man's education, his tastes an temperament, perhaps too, his religion, and certainly, as on might infer from Wordsworth, his philosophy and morals For vision, tho projected towards that which is external, i largely subjective and idealistic. And yet, while elementar observation is one of the simplest of physical sensations, as matter of fact, there is more diversity manifested here than i the operation of any other of the senses.

No two people see the same object with precisely the sam degree of perception. Between Peter Bell, into whose hear "Nature ne'er could find the way," and William Blake, th painter-poet, who declared that he saw angels nestling in th boughs of trees and in the swaying corn, there are myria degrees of visual power. What but an instance of the fecundit of observation is that perennially interesting book "The Natural History of Selborne"? Such work as Gilbert White di could be accomplished by any one with an observant eye; and apart from the fact that such a study of Nature is one of the purest of human pleasures, it must tend to have an influence on the whole range of intellectual perception, besides laying a possible basis of important scientific conclusions. This latter result is finely illustrated in the work of Charles Darwin and Alfred Russel Wallace, whose methodical observation of natural phenomena led them to the apprehension of the doctrine of evolution. In the cases of all the three, simple observation was the basal element in their work; and, altho this power is within the reach of all, it is surprising to find how sparsely it is distributed and how little it is cultivated.

Let a man pause for a moment to consider the fact and he will soon realize how little he actually sees in the world in which he moves from day to day. "I have noticed," wrote Richard Jefferies, "that people are never so astonished as when some fact of natural history is unexpectedly pointed out to them, where it must have been for a long time under their very eyes. There are people who have never seen a humble bee drill a hole in the nectary of a snap-dragon, and yet have whole gardens full of flowers." How many even could stand the test to which that immortal hero, Huckleberry Finn, was subjected?

> "Say—when a cow's lying down which end of her gets up first? Answer up prompt now; don't stop to study over it. Which end gets up first?"
>
> "The hind end, mum."
>
> "Well then, a horse?"
>
> "The forrard end, mum."
>
> "Which side of a tree does the moss grow on?"
>
> "North side."
>
> "If fifteen cows is browsing on the hillside how many of them eats with their heads pointed in the same direction?"
>
> "The whole fifteen, mum."
>
> "Well, I reckon you have lived in the country."

This, let it be added, is but an instance of the simplest observation. It may indeed, be the beginning—or it may be the end—of a process pregnant with important results. The difference between such vision and scientific observation really lies in the constitution of the mind which receives the sensation. For, as it has been accurately pointed out, the se eye depends greatly on the inquiring mind, and, as a m of fact, reflection forms a large part of what is popularly kn as observation. "To know a thing," as a modern writer s "means to bring it in relation to our own mind, and our n is not a mirror which passively reflects, but an agent which h to constitute the object of its ken." The scientific obse reflects on what he sees, as Galileo reflected on the swin lamp in the cathedral of Pisa and conceived the inventio the pendulum; or as Sir Samuel Brown pondered over spider's web, which he saw suspended in his garden one aut morning, and evolved from it the idea which he worked ou the construction of the suspension bridge over the Tweed. is the mind which asks the why and the wherefore of wh sees, which relates what the eye beholds to the cognate kn edge stored up in the mind, that constitutes the difference tween untutored and scientific observation. Hence, as a modern educationalist, "if we desire"—that is, if te ers desire—"minute observation in a general direction, we m cultivate special knowledge to correspond. If we wish encourage general observation, we can only succeed by c vating wide interests."

Prof. Bain, in his work "The Senses and the Intellect," sh that the sensations of sight are compounded of visual spe and muscular feelings, and that the difference between individual and another so far as regards the art of seeing pends on the extent and degree with which visible forms be retained. Only in the difference of natural adhesivenes reference to these sensations can the enormous differences servable in the acquirement of persons similarly situated explained. At the same time, he admits—and from the tea er's point of view, this is important—that susceptibility may heightened by a habit of attention and by the interest attach to a particular object. Another curious feature about th sensations to which Prof. Bain calls attention, and which borne out by experience, is that, while it would seem that muscular sensibility ought to be equally impressed with all kinds of forms, in reality this is not so, and this difference he considers must be explained by some circumstance deeper than the circles of vision. This fact may possibly account for the predilection of some minds for mathematics and of others for science or some other department of mental activity.

Referring again to the reciprocity between things seen and knowledge cognate thereto, one cannot doubt that in many cases observation may be helped to a fruitful issue by the existence of such special knowledge. Newton's mind, for example, was characteristically mathematical; and it has been pointed out that, however fascinating a phenomenon might be, he had always his mind ready to seize it with the mathematical pincers and to regard it in that view alone. To this must be attributed his great discovery of the Law of Gravitation. It was only such a mind that could identify the two facts of the fall of heavy bodies on the Earth and the attraction between the Sun and the planets, which he had previously been contemplating as two separate unrelated phenomena, and so resolve from the identification the great discovery with which his name must ever be associated.

On the other hand, it must be admitted that the presuppositions and prejudices of theorists are apt to warp and distort the vision of even the simplest facts. It is confessedly difficult to approach the investigation of facts or phenomena with a mind free from bias; but, unless this be done with at least some degree of thoroness, the things seen are sure to be colored by preconceptions of the investigating mind. Goethe, for instance, with certain presuppositions on the theory of color, which had not been subjected to the test of adequate investigation, began to suspect the accuracy of Newton's theory on the subject, and with this suspicion in his mind pursued a course of study which seemed to confirm his suspicions. Eventually he firmly convinced himself not only that Newton was wrong, but that he had himself arrived at the truth. His conclusions were, however, ultimately disproved. John Ruskin was another theorist, who, as his latest biographer says, was perpe constructing, *a priori* out of his own head, new scheme theories without any systematic knowledge of theology c tory or economics or even art. One of his frequently it doctrines, for which (be it admitted) there is much to be was that there is a distinct relation between art and na life and character; but it is surely carrying the analogy t to find a connection between the chimneys of a country a national character. But this he professes to do, findin example, in the chimneys of Spain an absence of soul; in of Germany the awkward effects of a tasteless nation; a English structures a monstrous ugliness too awful to co plate. This only shows the folly of looking at facts th spectacles of one's theories.

What is true in relation to actual physical vision is n true in regard to mental perception, of which instances ab The revival of the contention that Shakespeare's plays written by Bacon furnishes a startling illustration of th torted vision that results from selecting and arranging the so as to dovetail with the theory. Such examples sta beacons of warning against prejudice, in reference to the student of phenomena, seeking to understand their wh wherefore, must be ever on his guard. One of the ver principles of the art of seeing is to clear the mind of pre and preconception. As Richard Jefferies says in his edit Gilbert White:

> Part of his success was owing to his coming to the field with unoccupied. He was not full of evolution when he walked ab variation, or devolution, or degeneration. He did not look for m everywhere. His mind was free and his eye open. To many it do much good to read this work, if only with the object of gett of some of the spiders' webs that have been so industriously spu the eyesight of those who would like to think for themselves.

But there is not only scientific vision—there is also the of the artist, which in some senses is a step higher, sin progress of education is ever from the concrete to the ab The difference between the two is partly physical and psychological. There may be a highly developed suscep to the infinite variety in the imagery of the world around, but there must also be a sense of beauty; for, as Emerson says, in a fine phrase, "tho we travel the world over to find the beautiful, we must carry it with us or we find it not." This sense may be nothing more in its primary manifestations than a tendency of the mind to lay special stress on the beautiful and the sublime; but when this exists the naturalist passes into the artist. Even matter-of-fact Gilbert White had an artist's eye for landscape; for we are told that frequently, as he rode along the South Downs, he would check his horse to admire those very scenes which Turner has made classic.

There can be no doubt, indeed, that, just as the power of simple observation may be cultivated, so may the esthetic sense be fostered and developed; otherwise it may lie dormant and unconscious. And in this just connection lies the educational value of art; for, as Aristotle says, "Art, if it cannot create, may promote an activity." There is profound truth in the remark of a modern writer that "what we see and how we see depends on the arts that have influenced us." Hence the great function and purpose of art—she helps us to see. Art is an aspect, a point of view, a clarifier of vision. She takes the scales from our eyes and spreads before our view all the wonder and bloom of the world. "We do not really see anything," it has been said, "until we see its beauty." We see in fact what we bring the power to see, and thus art becomes the great revealer of unperceived beauty, the enlightener and interpreter of the inanimate world. Those philanthropists that seek to widen the outlook and elevate the tastes of the masses by holding picture exhibitions in the East End have had their cavillers, but at least such agencies do something to develop this art of seeing, which in these days of commercial absorption is work well worth doing. It is not for nothing that a permanent Art Gallery should have been erected in Whitechapel. And Toynbee Hall, with its multiform activities, has been to not a few hard-working toilers a means to an open vision. Said one of these recently: "Toynbee gave me eyes for pictures, ears for music, and a heart

for poetry." This is good in and for itself and still more so f
the ultimate effects of such an acquisition. Indeed, to be ab
to perceive beauty in art is often a sure means to the percepti
of beauty in Nature. Browning says with perfect truth:

We're made so that we love
First when we see them painted, things we have passed
Perhaps a hundred times nor cared to see,
And so they're better painted
. . . .
. . . Art was given for that.

Poetic vision—to carry the subject to a higher plane—is
much a reality as scientific or artistic observation. The po
may indeed have the power of scientific vision, as Tennyson ha
he must certainly possess the artistic sense, but, added to thi
there is with the great poets a deeper sense still. The po
penetrates beneath the surface of things. He relates what
sees to the great truths and ideas of life. Not only does
open the eye to undreamed-of beauties; he develops the visi
of that inward eye which is the bliss of solitude. Things se
are to him symbols of spiritual realities. Not infrequently
divines some hidden truth, or helps to the realization of son
imperfectly comprehended idea. He interprets the world
phenomena to the mind and heart in language they can unde
stand. He sees the things of the world which are within rea
of the simplest observation, but he sees also their beauty a
divines their import. The springs of human conduct th
Shakespeare reveals, the interpretation of Nature in Word
worth, and the keen psychological insight of Browning
witness to the keenness of the perceptive power of the po
To the scientist *qua* scientist the facts of Nature and the wor
are all-sufficient. He is concerned with them as facts; b
the poet discerns relations and analogies, and strives to rea
the idea behind the phenomena. "Poetry's sole aim," sa
Maeterlinck, "is to keep open the great road that leads fro
the seen to the unseen."

The analysis of this fascinating subject would be incomple
without a closing reflection on that inner vision of the so
that evidence of things not seen comprised in the word "faith

This finer perception of the spirit which controls and informs every kind of vision has, apart from all dogma and doctrine whether speculative or theological, a place to fill and a purpose to serve. All high poetry shades off imperceptibly into the regions of faith. For faith is in reality a point of view. Whatever basis the religious sense may possess in theology or philosophy, it is in essence an outlook on life thru a medium which transmutes and conditions everything which is brought to view. Life, Duty, and Destiny, are all conditioned by the religious outlook; and this is an aspect of life that has enormous influences on character and action. Far more than the poet it looks beyond the things which are seen to the things which are unseen, and seeks to apprehend the idea that lies behind the phenomena of the visible world. It is of faith as a form of vision that Tennyson is thinking when he says in "The Ancient Sage":

> She sees the best that glimmers thru the worst,
> She feels the Sun is hid but for a night,
> She spies the summer thru the winter bud,
> She tastes the fruit before the blossom falls,
> She hears the lark within the songless egg,
> She finds the fountain where they wailed: "Mirage!"

VERNON GIBBERD, in the London *Educational Times.*

In speaking of his use of the word Reason, Rousseau mentions two methods of teaching geography, the synthetic and the analytic. In the first case the teacher will start from the home and work outwards to ever-widening areas and phenomena; in the second he will first present some general geographical conceptions and grand divisions and then will deal with what is known as local geography as one element included in these generalizations. Rousseau advocates the use of both methods and in connection with the synthetic method he states that Emile is not to learn, but discover, geography by observation. He speaks of this method as of most value in physical geography, as it is now called, while he emphasizes the mental training it affords by remarking of children—"I see that they reason very well on whatever they know and on whatever is related to their present and obvious interests."

Grading, Promotion, and Individual Instr

THE most serious drawback of the graded schoo present time is that it causes children of capacities to move along in even step just l they happen to be in one school grade. Ea vidual is required to do just so much work in so muc Differences in attainments, ability, age, powers af con tion and attention, physical health, home influence, atte —are all disregarded. Teachers know well enough tl child can cover the work of a certain grade much more than another child, even tho the two children started w same preparation at the beginning of the term. But the zation of most schools permits of practically no differen

Let us consider some of the effects.

Two children, both seven years of age, neither of whi been to school before, enter the first grade. One of thes dren has a father who is in spirit, a teacher. He is eve to help his boy, to explain questions. The mother, interested in the progress of her child. She will visit the occasionally to consult with the teacher concerning h and how she can help the teacher at home. The oth enters the same class, at the same age. His parents hav little education; his mother works in a local silk mill, night has neither inclination nor time to think of her school work. The boy's interest in school receives no e agement. Soon he feels that the class is advancing too for him. The first boy will have easily completed the of the grade long before the second boy has gotten a fa upon it. The usual result is that number one will grov tentive because he has not enough work to keep him bus number two will grow inattentive because he wants indi attention for which nobody seems to have time. As the of inattention grows, the two boys may become trouble They may both be classified as unruly youngsters beca the viciousness of the cast-iron organization of the g school.

My personal experience is that efficient work can be done only when each child receives the kind and amount of work each day that is best for him individually.

I remember a class where the teacher started at the beginning of the term with a class of little ones. The first month the attendance was very poor. At the end of the month she had found a child who was in advance of his classmates. He was promptly exchanged for one in the next higher class, who had fallen behind. Another, who had fallen behind thru non-attendance, was exchanged for one in a lower class who had done exceptionally well. It soon became understood in the school that children were to be exchanged at the end of each month; promoted or demoted, as the case called for, provided that each teacher kept the same number of pupils each month. By the second month the attendance had improved all thru the school, without a truant officer. The work, too, was better. The regrading continued and worked well. Each class always had an equal number of pupils, the classes were always well graded and more attentive, and the teacher knew better than before what to expect from each child. Teachers kept their classes for one year. This plan is certainly better than the five months' term, whatever it may lack.

Of course such a regrading each month appears possible only where classes are separated only about a month or so in their work. This separation of classes by only a month or two I believe to be more reasonable than the separation by five months. Instead of having three 3A and two 3B classes, making five classes of the Third Grade, some of them doing the same work, why not have five classes, each two months in advance of the next lower class, instead of five months? The classes would cover the same amount of work in the term, or rather, more, in both quantity and quality; and would be far better graded. Each teacher could keep her class for one year. Many times during the year there might be special promotions of deserving ones, because the next higher class would be only two months ahead. Many times, also, there might be retrogressions to suit the slow ones, because they need only go back two months. Under our present system the bright must either be held back, or skip five months' work; which is too much; while the slow must either drag along, or be put back five months; which is also all wrong.

Then again, each class might be divided into many small divisions; especially the lower primary classes. These might rank according to ability and attainments, and be taught separately. There could be a constant shifting of these divisions; so that pupils of equal ability and attainments would always work together. In a first year class I prefer to reclassify once a week; because I find that if a child is home for one week he is utterly at a loss to work with the same class on his return. This cannot be otherwise if the work is progressing as it should. In the first and second years I would make reading the basis for grading.

When a child's work is excellent in all subjects it is time for him to advance to the next higher grade.

Let us have shorter class intervals.

The teacher deserves, in my estimation, very little credit for the bright pupil of her class. Such a pupil has often great working ability; and he will learn under poor teaching—and often in spite of it. Let the teacher but awaken his consciousness of power, see that he is promoted often, and placed in proper environment, and if she does no more, she will help him work out his own salvation.

In such a system as ours the average pupil does well enough, under a good teacher; for the school is graded to accommodate him. He will learn, because the teacher plans the work for him.

But the poor dullard—the dunce—what of him? Is the school doing for him all it should? Is he not the one above all others who needs the teacher? Does not every faithful teacher's heart go out to this poor plodder, and does she not spend many hours thinking, planning, and working for him? He never shows off her work, but her success with him is indeed success. He should be considered far more carefully than either the bright or medium pupil, because of his stupidity and ignorance, and because of the great danger of sending such a pupil out into the world discouraged, and with, perhaps, a feeling of rebellion against the schools, and life in general. There should be some system of grading and promoting suited to his individual needs, while at the same time not ignoring the needs of the bright and average pupil. We have no right to promote a class as a whole, like a drove of sheep. It is positively wicked.

The rational grouping of children of approximately equal attainment in the things taught at school would go a long way toward solving the problem. In my opinion, the small class or group is preferable to private, individual tutoring; for the reason that children learn readily from each other, and review the lesson from the point of view of their companions. They learn to see imperfections in their own work not pointed out by the teacher. As this small group will not remain perfectly graded for any great length of time, there must of course be thoughtful and frequent reclassification; otherwise we are not improving our system very much. For my part, in the first school year I prefer to reclassify every week; I find it not too often.

Of course it would be desirable to have smaller classes in order to work this plan effectually. But it can be done even with a class of fifty or sixty.

It is odd that the custom should ever have become prevalent to measure out the ability and brain power of, say, fifty promiscuous children; and say that they can all do the same amount of work in a given time; measuring it out even to the day and hour that they shall all have accomplished it, and be ready for promotion. Yes, let them all jog along together, mentally, until the last Friday of June. Then at 3 o'clock P. M. they will all finish the race together. Wonderful!

Our schools are graded for the average pupil, generally. Its ideal appears to be that of a tailor who would say to himself, "Now, I am to make suits for a dozen men. The tallest man is six feet, and the shortest is five feet. I will make each suit to fit a man five feet six inches, and then each man will fitted very well."

A satisfactory plan must make three things possible: Accurate classification, so that pupils of the same ability a attainments may work together; (2) frequent reclassificati by the teacher; (3) classes and individuals must go forwa as fast as ready, and no faster.

One good result of frequent classification will be that th will always be bright pupils at the foot of the class, who ha recently come up from a lower grade, and are working This will be better for the bright pupil than that he shou always be at the head of his class, working aimlessly or idli away his time. These bright pupils coming up will also sp on the slow pupils who have not yet learned to work.

Promotions from one teacher to another had best be ma at the beginning of the month. Reclassifications in the sa room may be made as often as necessary.

In order that children may be advanced when ready, and before, there should be frequent reviews. These revie might be weekly in the lower classes and monthly in the high classes. By these reviews a teacher sees her own weak poi as well as those of the pupils, and learns to overcome them.

One great advantage of teaching the small group is that gives the children no chance to copy or repeat the answers the brighter pupils. In the small group the teacher can serve the working of each child's mind, as it were; and w for the thought to come. This in itself is a strong incenti to mental activity and alertness.

Have we ever seen children who had learned a reading l son by hearing others read it, without themselves knowing words, who were afterwards required to read the same wor in a sentence, but differently placed? The first time I hea such a child read I thought he was mentally defective. I he read very expressively and positively a sentence that w not there at all. More than this, whenever he saw a famil word he would recite some former sentence that he remember that had contained that word. Why did he do this? He had not learned to read in the small group, where he must do his own thinking. Then, too, the little group requires and develops concentrated attention, makes lazy children hustle, gives courage to the timid child, and independent work for all. In the small group the "danger points," where the child may fail, become apparent. In the large class many of these would pass unnoticed.

Superintendent Shearer, of Elizabeth, has devised and thoroly tested this system of grading and promoting. It has been tried in his schools with splendid results. Examinations for promotion are done away with, and pupils are promoted at any time on recommendation of principal and teacher. Each session of school has a study period, at which time the teacher helps individual pupils who need it, by the "danger points."

The plan of individual instruction introduced by Superintendent Kennedy in the schools of Batavia, N. Y., is also a very interesting experiment. He places about seventy children in one large room with two teachers. One teacher does the work with the classes. The other teacher works with the pupils individually. She must, of course, work silently, without disturbing the work of the class which happens to be reciting. Sometimes Mr. Kennedy has but one teacher in a room, who spends half her time in individual work and the other half in class work. This latter plan is not particularly new. Many teachers have followed it for years, tho they may not always spend so much time each day on the individual work. However, in Mr. Kennedy's schools the plan has been generally adopted, and that makes it distinctive in his case. Mr. Kennedy claims that under his plan classes can be kept together and there is very little need of individual promotions.

It seems to me that the Batavia plan is a delightful one for the slow pupils. But does it not slight the bright pupils? Would the parents of the bright boy not become discouraged knowing that he was able to advance faster than these slow ones? Would it not result in the bright pupils leaving the and it act

Another plan i
from every other
leaving the classe
in harmony. As
class" shows impr
turned to his forme

Still another pla
or rather the same
bright, one for slow
a course of four ye
in three years for th
five years for the slo
because of its flexib
the backward one in
sence, or other cause
in the slower class pe
case called for. Also
to get out of the slowe

Still another plan m
children whose parent
a course might drop a
subjects necessary as f

After all arguments
lieve that the successfu
doing individual work

Medical Inspection

SUGGESTIONS TO TEACHERS AND SCHOOL PHYSICIANS

In order to render the medical inspection required by the laws of Massachusetts effective and uniform thruout the State, Governor Guild appointed a committee to prepare a circular of advice to the school physicians of the State. This committee consisted of Dr. Henry P. Walcott, Dr. Charles Harrington, and Dr. Julian A. Mead, representing the State Board of Health; Mrs. Ella Lyman Cabot, Mr. George I. Aldrich, and Mr. George H. Martin, representing the Board of Education; and Dr. Robert W. Lovett, Dr. Harold Williams, and Dr. W. H. Devine, representing the medical profession. A sub-committee of this body arranged for conferences with the heads of departments and others connected with the medical schools and hospitals in and about Boston, and with physicians who have had experience in school inspection. These gentlemen have given freely of their time and thought, and have furnished to the committee the suggestions given below.

INFECTIOUS DISEASES.

DIPHTHERIA.—It is a well-recognized fact that nasal diphtheria of a mild type without constitutional disturbances is one of the most important factors in causing the spread of the disease, and also that children very frequently have profuse discharges from the nose. It therefore follows that, in order to properly inspect the public schools, it is important that cultures should be taken from the nose in every case where there is a persistent discharge, particularly if there is any excoriation about the nostrils.

The throat should be examined at varying intervals, depending upon the physical condition of the children. Any hoarseness or any thickness of the voice should cause an examination of the throat. If the tonsils are enlarged, if the mucous membrane is congested, if there is swelling of the palate, a culture should be taken. These symptoms precede diphtheria.

A child with positive cultures should be excluded from school until two consecutive negative cultures at an interval of forty-eight hours have been obtained.

Scarlet Fever.—If there is a sudden attack of vomiting, if there is any redness of the throat, if the child complains headache, if there is an unexplained rise in temperature, child should be isolated at once. Any desquamation (peeli of the skin) should be looked upon with suspicion. If th are any breaks at the finger tips, if on pressing the pulp the finger there is a white line at the juncture of the nail wi the pulp of the finger, particularly if this occurs in the majori of the finger tips, the child should be excluded from the scho

A child who has had scarlet fever should not return to scho until the process of desquamation has been entirely complete and all discharge from the nose and ears has ceased.

Measles.—Running from the nose and slight intoleran of light may call for an examination of the mucous membra of the mouth for Koplik's sign. Koplik's sign, so called, the presence on the lining membrane of the mouth, near t molar teeth, of minute pearly white blisters, without a inflammation around them. There may be only two or thr of these blisters, and they may easily escape detection if t patient is not carefully examined in a good light. The blisters are certain forerunners of an attack of measles.

No child shall return to school after an attack of measl until the desquamation is entirely completed, and the chi has recovered from the intercurrent bronchitis.

Mumps.—Any swelling or tenderness in the region of t parotid glands (situated behind the angle of the jaw) shou be looked upon with suspicion. It is important to notice a enlargements or swellings about Steno's duct (inside the mout opposite the second upper molar tooth), as this is a very fr quent symptom of mumps.

A child should be excluded from school until one week h elapsed after the disappearance of all swelling and tenderne in the region of the parotid glands.

Whooping-cough.—A persistent paroxysmal cough, fr quently accompanied with vomiting, no matter whether the is any distinct whoop or not, is indicative of whooping-coug In cases of whooping-cough of long standing, even if the has been no distinct whoop, an ulcer on the band connecting the lower surface of the tongue with the floor of the mouth is found in a certain number of cases. If there is no distinct ulceration, there may be a marked congestion of the band.

As long as there is any cough, the child who has had whooping-cough should be looked upon with suspicion.

Varicella (*Chicken Pox*).—A few black crusts scattered over the body are evidences of an attack of chicken pox. The crusting seen in impetigo must be differentiated from that of chicken pox.*

No child should return to school until all crusts have disappeared from the body, particularly from the scalp, for in this region the crusts remain longer than elsewhere.

THE EYES.

[Supplement to circular already issued.]

There are certain children who show normal vision by the ordinary tests, yet whose parents should be notified to have the eyes examined. These are: (1) Children who habitually hold the head too near the book (less than twelve to fourteen inches); (2) children who frequently complain of headache, especially in the latter portion of school hours; (3) children in whom one eye deviates even temporarily from the normal position.

It should be remembered that the following symptoms are at times indicative of trouble with the eyes: (1) Habitual scowling and wrinkling of the forehead when reading or writing; (2) twitching of the face; (3) inattention and slowness in book studies in a child otherwise bright.

THE EARS.

See circular of directions for testing hearing, already in hands of teachers.

THE THROAT AND NOSE.

In all cases of acute illness the throat should be examined

---

* See Diseases of the Skin.

for the presence of the eruption of scarlet fever and mea
and for the exudation or membrane of tonsilitis and di
theria, and a culture taken in any suspected case of the lat

The presence of discharge from the nose should be not
and if it is thick and creamy, a culture should always be tak
In all cases of severe hoarseness, with difficult breathi
diphtheria should be suspected. If the discharge from
nose is only from one nostril, a foreign body in the nose sho
be looked for.

In cases of chronic nasal obstruction, as evinced by mou
breathing, snoring, continual post-nasal catarrh or recurr
ear trouble, the presence of an adenoid growth (third ton
should be suspected, and the child referred for special exa
nation and treatment. As a rule, digital examination
adenoids should be made only by the operating surgeon.
viously large tonsils, recurring tonsilitis and enlargement
the glands of the neck, suggest the advisability of referring
child to the family physician as to the propriety of remov
the tonsils.

Recurring nose-bleed should be referred for special treatme

In cases of eczema about the nostrils, a cause may be sou
in pediculi capitis (head lice).

In referring cases for treatment, school physicians, in addit
to the diagnosis, should state the symptoms upon which
diagnosis is based, for the benefit of the family physic
or specialist.

DISEASES OF THE SKIN.

Scabies (*the Itch*).—A contagious skin disease, due to
animal parasite which burrows in the skin, causing inte
itching and scratching. The disease usually begins upon
hands and arms, spreading over the whole body, but does
affect the face and scalp. Between the fingers, on the fr
of the wrist, at the bend of the elbows and near the arm
are favorite locations for the disease; but in persons of clea
habits the disease may not show at all upon the hands, and

real nature is determined only after a most thoro and careful examination. There is a great variation in the extent and severity of this disease, lack of personal care and cleanliness always favoring its development. Scratching soon brings about an infection of the skin with some of the pus-producing germs, and the disease it then accompanied by impetigo, or a pus infection of the skin.

At the present time itch is very common and widespread, and, because of the great variation in its severity, mild cases have been mistaken for hives, eczema, etc., the real condition not being recognized, and the disease spread in consequence. All children who are scratching or have an irritation upon the skin should be examined for scabies.

It is very important that all infected members of a family be treated till cured, else the disease is passed back and forth from one to another. It is also important that all underclothing, bedding, towels, etc., things that come in contact with the body, be *boiled* when washed.

All cases of scabies should be excluded from school until cured.

Pediculi Capitis (*Head Lice*).—An extremely common accident among children, either from wearing each others' hats and caps, or hanging them on each others' pegs, or from combs and brushes. No person should be blamed for *having* lice,—only for *keeping* them.

The irritation caused by vermin in the scalp leads to scratching, which in turn causes an inflammation of the skin of the neck and scalp. The skin then easily becomes infected with some of the pus-producing germs, and large or small scabs and crusts are formed from the dried matter and blood. Along with this condition the glands back of the ears and in the neck become swollen, and may be very painful and tender.

The condition of pediculosis is most easily detected by looking for the eggs (nits), which are always stuck onto the hair, and are not readily brushed off. The condition is best treated by killing the living parasites with crude petroleum,

until their heads
parents who negl
respect may be pr

Ringworm.—A
scalp. When it oc
ment, but upon th
of the skin usually
upon the body,—in
One or more, usual
the same time. Al
be examined for rin

When the disease
off near the scalp, l
bald. The scalp in
scaly, but may be sw
at the circumference
scratching, etc.

Another disease, son
known as favus,—a di
than America. In this
yellowish color are prese
roots of the hair are kill
disease is permanent, a
is cured.

Care must be taken to
thoroly clea

or small flat or elevated pustules or festers upon the skin. The condition is often secondary to irritation or itching diseases of the skin (hives, lice, itch), and scratching starts up a pus infection.

The disease most often appears upon the face, neck, and hands; less often upon the body and scalp. The size of the spots varies very much, and they often run together to form on the face large superficial sores, covered with thick, dirty, yellowish, or brownish crusts.

The disease is contagious, and often spread by towels and things handled.

Children having impetigo should not be allowed to attend school until all sores are healed and the skin is smooth.

DISEASES OF THE BONES AND JOINTS.

All noticeable lamenesses, whether sudden or continued, may indicate serious joint trouble, or may be due to improper shoes. These cases, as well as curvatures of the spine, as indicated by habitual faulty postures at the desk or in walking, should be referred for medical inspection.

Spinal curvature should be suspected when one shoulder is habitually raised or dropped, or when the child leans to the side, or shows persistent round shoulders.

Complaints of persistent "growing pains" or "rheumatism" may be the earliest signs of serious disease of the joints.

SOME GENERAL SYMPTOMS OF DISEASE IN CHILDREN WHICH TEACHERS SHOULD NOTICE, AND ON ACCOUNT OF WHICH THE CHILDREN SHOULD BE REFERRED TO THE SCHOOL PHYSICIAN.

Emaciation.—This is a manifestation of many chronic diseases, and may point especially to tuberculosis.

Pallor.—Pallor usually indicates anemia. Pallor in young girls usually means chlorosis, —a form of anemia peculiar to girls at about the age of puberty. It is usually associated with shortness of breath; the general condition otherwise

disease of the he
the trouble is u
cough, the troubl

Swellings in th
enlargement of th
acutely, and is lo
the ear. Swollen
about the angle of
or slowly. If acut
throat. If slowly,
may also be the resu

General Lassitude
hardly need descript
or onset of any of t

Flushing of the F
this account should

Eruptions of Any
the attention of the
notice eruptions, beca
some of the contagious
is of a bright scarlet co
and chest, spreading th
ring about the mouth i
istic. There is usually
eruption. The eruption
and is in blotches about
the face, and is usuall

A Cold in the Head, with Running Eyes.—This should be noticed, because it may indicate the onset of measles.

Irritating Discharge from the Nose.—A thin, watery nasal discharge, which irritates the nostrils and the upper lip, should always be regarded with suspicion. It may mean nothing more than a cold in the head, but not infrequently indicates diphtheria.

Evidences of Sore Throat.—Evidences of sore throat, such as swelling of the neck and difficulty in swallowing, are of importance. They may mean nothing but tonsilitis, but are not infrequently manifestations of diphtheria or scarlet fever.

Coughs.—It is very important to notice whether children are coughing or not, and what is the character of the cough. In most cases, of course, the cough merely means a simple cold or slight bronchitis. A spasmodic cough, that is, a cough which occurs in paroxysms and is uncontrollable, very frequently indicates whooping-cough. A croupy cough, that is, a cough which is harsh and ringing, may indicate the disease diphtheria. A painful cough may indicate disease of the lungs, especially pleurisy or pneumonia. A long-continued cough may mean tuberculosis of the lungs.

Vomiting.—Vomiting usually, of course, merely means some digestive upset. It may, however, be the initial symptom of many of the acute diseases, and is therefore of considerable importance.

Frequent Requests to Go Out.—Teachers are too much inclined to think that frequent requests to go out merely indicate restlessness or perversity. They often, however, indicate trouble of some sort, which may be in the bowels, kidneys, or bladder; therefore, they should always be reported to the physician.

THE TEETH.

Unclean mouths promote the growth of disease germs, and cavities in the teeth are centers of infection. Pus from diseased teeth seriously interferes with digestion, and poisons the system. It causes a lowering of vitality, and renders effort difficult. Diseased teeth, temporary as well as p nent, are frequently the cause of abscesses, and shou carefully watched and treated.

Irregularities of the teeth, especially those which ma impossible to close the teeth properly, lead to faulty dige to mouth-breathing, and to other diseases and evils whi insufficient supply of oxygen produces.

The first permanent molars are perhaps the most impo teeth in the mouth, and are the most frequently negl because they are so often mistaken for temporary teeth should be remembered that there are twenty temporary ten in each jaw, and that the teeth that come at abou sixth year immediately behind each last temporary to four in all—are the first permanent molars.)

The teacher should be on the lookout for pain or sw in the face. When the child keeps the mouth cons open, an examination of the teeth should be made. symptoms of indigestion occur, or physical weakness or m dullness are observed, the teeth should be inspected. It sh be remembered that disease of the ears, disturbances of and swelling of the glands of the neck may be caused by eased teeth.

It should be known that decay of the teeth is caused prin by the fermentation of starchy foods and sugars, and tha greatest factor in preventing dental caries is the removal of particles by frequent brushing. Children should be prev from eating crackers and candy between meals, and possible the teeth should be cleaned after eating. Inspe of the teeth by a dentist should be made at least once i months.

NERVOUS TROUBLES AND MENTAL DEFECTS.

Teachers and medical inspectors of the schools sh investigate children who show certain physical and m symptoms. Especially should they take notice of the pres of these symptoms in a child who did not formerly show them. The most important of these are the following:

I.—Restlessness and inability to stand or sit quietly, in a previously quiet child, especially if to this is added irritability of temper and loss of self-control, as shown by crying for trifles, or inability to keep the attention fixed.

There may also be present quick, twitching movements of the muscles of the trunk, face, and especially of the hands, fingers, arms, or legs. If severe, these may cause the child to drop things, render its work awkward, or interfere with buttoning the clothes, writing, or drawing. Such children are often scolded for being inattentive or careless.

These symptoms are the slighter ones of chorea (St. Vitus' Dance). With these should not be confounded other forms of twitching of muscles, such as the blinking of the eyelids, the slower twisting movements of the face or shoulders, or other parts of the body, often called habit spasms, which may be due to defects of vision, adenoid growths, or other reflex causes. These latter cases do not usually need to be withdrawn from school work, tho often requiring treatment; while the former class should be removed from school at once, both for the child's sake, and to prevent an epidemic of imitative movements, such as sometimes occurs.

II.—Another class of symptoms requiring investigation are repeated faintings especially if the child's lips become blue; attacks, often only momentary, in which the child stares fixedly and does not reply to questions, or in which he suddenly stops speaking or whatever he is doing, and is unaware of what is going on about him. These lapses of consciousness may be accompanied also by rolling up of the eyes, drooling, or unusual movements of the lips, and often appear like a "choking" attack.

Sudden attacks of senseless movements of various sorts, such as twisting and pulling at the clothes or handkerchief, fumbling aimlessly at the desk, especially if there is no recollection afterwards of what was done, are often another expression of the same conditions.

Such attacks, particularly if repeated at varying inte
even when not accompanied by complete loss of conscious
are frequently as characteristic of epilepsy as the severe
vulsions.

Epileptic convulsions usually involve the entire bod
sharp jerking movements, with blueness of the face or
complete loss of consciousness, and are usually followed
period of sleep or drowsiness, and are frequently accompa
by frothing at the mouth, biting of the tongue, and occa
ally by wetting or soiling of the clothes.

Another class of convulsions is the hysterical, which
often difficult to distinguish. The hysterical convul
however, differs from the epileptic in the following resp
The hysterical patient often shouts, cries, or raves, not
previous to but frequently thruout the attack, and is often
to reply to questions during the convulsion. The epile
gives a single cry, immediately followed by unconscious
and the spasm. The movements in the hysterical convuls
are often accompanied by bowing of the body backward,
very frequently simulate intentional or voluntary movem
such as tearing the hair, pulling at the clothes, and such thi
while the epileptic movements are characterized by
jerking or twitching character. The hysterical patient,
in place of a convulsion, may strike an attitude, such a
fear or entreaty, often accompanied by raving or singing.
again may follow the convulsion, taking the place of,
strikingly contrasted with, the almost invariable sleep of
epileptic, which is almost never seen in hysteria. Hyste
patients if they fall seldom injure themselves by the fall
epileptics frequently do. Biting the tongue almost invari
indicates an epileptic seizure, as does wetting or soiling
clothes when it occurs.

Cases of epilepsy, whether mild or severe, require treatm
and advice as to whether they should be removed from sch
Many cases do not require to be withdrawn from school,
are benefited by its discipline.

III.—Excessive nerve fatigue, which is shown by irritability or sleeplessness, may indicate a neurasthenic condition, that is, a threatened nervous breakdown. Such symptoms may be due to irregular habits, want of proper sleep, lack of suitable food, poor hygienic conditions, or simply from the child being pushed in school beyond its physical or mental capacity.

Excessive fear or morbid ideas, bashfulness, undue sensitiveness, causeless fits of crying, morbid introspection, and suspiciousness may also be symptoms of a neurasthenic condition, and call for investigation, and for the teacher's sympathy and winning of the child's confidence, to prevent developments of a more serious nature.

This nerve fatigue may result in a child being unable for the time being to keep up in its work in school.

Forgetfulness, loss of interest in work and play, desire for solitude, untidiness in dress or person, and like changes of character, are sometimes incidental to the period of puberty.

IV.—Mentally defective children in the public schools exhibit certain common characteristics. The essential evidence of mental defect is that the child is persistently unable to profit by the ordinary methods of instruction, as shown by lack of progress or failure of promotion thru lack of capacity. After one, two, or three years in school, they are either not able to read at all, or they have a very small and scanty vocabulary. One of the most constant and striking peculiarities is the feebleness of the power of voluntary attention. The child is unable to fix his attention upon any exercise or subject for any length of time. The moment his teacher's direction is withdrawn, his attention ceases.

These children are easily fatigued by mental effort, and lose interest quickly. They are not observant. They are often markedly backward in number work. They are especially backward in any school exercise requiring judgment and reasoning power. They may excel in memory exercises. They usually associate and play with children younger than

themselves. They have weak will-power. They are ea
influenced and led by their associates. These children
be dull and listless, or restless and excitable. They are o
wilful and disobedient, and liable to attacks of stubborn
and bad temper. The typical "incorrigible" of the prim
grades often is a mentally defective child of the excitable t
They are often destructive. They may be cruel to sma
children. They are often precocious sexually. They
have untidy personal habits. Certain cases with only sl
intellectual defect show marked moral deficiency.

The physical inferiority of these defective children is o
plainly shown by the general appearance. There is gener
some evidence of defect in the figure, face, attitudes, or mo
ments. They seldom show the physical grace and charm
normal childhood. The teeth are apt to be discolored
to decay early.

It is a most delicate and painful task to tell a parent
his child is mentally deficient. This duty should be perforn
with the greatest tact, kindness, and sympathy. It would
a great misfortune for the school physician and teacher, as
as for the child, to designate a pupil as feeble-minded who
only temporarily backward.

Temporary backwardness in school work may be due
removable causes, such as defective vision, impaired hear
adenoid growths in nose or throat, or as the result of unha
home conditions, irregular habits, want of proper sleep,
of suitable food, bad hygienic conditions, etc. Great
must always be used in order not to confound cases of per
nent mental deficiency with cases of temporary backward
in school work, due to the causes mentioned above, or th
described under the head of excessive nervous fatigue.

In some cases, where the existence of mental defect i
doubt, accurate information is usually to be obtained in
early history of the child. The time of first "taking noti
the time of recognition of the mother, that of beginning to
up, to creep, to stand, to walk and to talk should be learn

Marked delay in development in these respects is usually found in all pronounced cases of mental deficiency.

It may be found useful to require teachers to refer at stated intervals to the medical inspectors for examination all children who, without obvious cause, such as absence or ill health, show themselves unable to keep up in their school work, who are unable to fix their attention, or are incorrigible,—tho it does not follow that all such cases have either physical or mental defects.

SCHOOL HYGIENE.

The school physician should notice the ventilating, lighting, and heating of the rooms, and the location of the source of water supply with reference to possible pollution. In case pollution of the water supply is suspected, application should be made to the State Board of Health for an examination of the water. The general cleanliness of the school-room is of importance, and the admission of sunlight when possible is desirable.

The Closets.—The school physician, accompanied by the janitor of the school, should inspect the toilet rooms, to see if the floors are clean and dry, that the bowls of the closets are properly emptied and kept clean. (If out-houses are used, a large supply of earth will aid in keeping the place in a sanitary condition.) A few simple directions as to the cleanliness of the room should be posted in the closets.

Cups.—The use of one drinking cup for a number of children is to be condemned, as tending to spread the infectious diseases from child to child. The so-called hygienic drinking fountains, now in more or less general use in progressive cities and towns, is to be recommended where running water is available. If there is no running water, each child should use his own cup.

SCHOOL FURNITURE.

Any proper sort of school furniture should furnish a seat of such height that the feet will rest easily on the floor. I have a desk high enough not to touch the knees. It have a desk low enough for the arm to rest on com without much raising of the elbow; not, however, so l the scholar must bend down to write on it.

The seat should be near enough so that the schol reach the desk to write on it without leaning forward mc a little, and without entirely losing the support of th rest. The seat should not be so close as to press agai abdomen nor near enough to interfere with easy risin the seat. This means a distance of ten and one-half to f and one-half inches from the edge of the desk to the sea it also means that the seat must not project under th more than an inch at most.

The seat should have a back-rest that will support the of the back" properly, without having the scholar lea excessively. Whether this also supports the rest of th or not is of small consequence; support of the back up to the level of the shoulder blades is likely to do mor than good.

These are given as the minimum requirements. W or not regular adjustable furniture is in use, we should content with less than the accomplishment in one w another of these primitive adjustments. More accura justment is desirable, and less care in adjusting would b to justify, in the light of our present knowledge of the of faulty attitude.

Every man's education should carry him as far up the of general culture as he can go consistently with his duties in life; but every man's education should be ro out with technical training for some definite occupat life.

Elmer E. Bro

U. S. Commissioner of Education.

Great Teachers

Thomas Arnold

THOMAS ARNOLD was an educator, and this forms his great distinction. His simple object was to devise what appeared best for the school at the time. He had a theory of action certainly, and he carried it out, amidst almost unceasing varieties of practice, but any dispositon that he might have had to theorize generally on education was kept in check by his desire to interfere as little as possible with the traditions of the school that he had to govern.

In 1828 he became head-master of Rugby school, and held this office till his death on June 12, 1842. In the fourteen years of his head-mastership he not only raised Rugby to a very high position among the public (secondary) schools of England, but breathed into public school education—and may we not say into private school education also?—a new spirit, the force of which is not yet exhausted, and of which we see the effects every day.

Arnold, then, was a schoolmaster and something more; but I do not think he was necessarily a worse schoolmaster on that account.

I hold distinctly to the opinion that it is not only an advantage, but even a duty, for a teacher to make himself acquainted with the personality, the principles, and the practice af the masters of his art. It is a great mistake, moreover, to suppose that we who may be engaged in one department of education cannot learn much from those who have been earnestly engaged in some other, tho widely different, department of the same field of action. Dr. Arnold, for instance, was the head-master of a great public school, and young teachers of little children may imagine that what Dr. Arnold did and thought in this position can have little or nothing in common with the work they have to do while in their presumed inferior condition of life. I say this is a mistake which it is important to correct—(1) because in my view founded on a false assumption; for viewed naturally, the work, and consequently the position, of an elementary teacher employed in laying the foundation of

the youthful mind, is in no respect inferior to that of an
teacher whatsoever; and (2) the bright example of exc
in the personal character or the work of a successful t
ought to be, must be, operative on the character and w
every teacher who carefully and admiringly studies it.

In the case before us, what ought to have taken place ha
place, for it is beyond a doubt that Arnold's life as an ed
has greatly influenced the professional lives of other edu

Arnold had to do with minds already educated in our
of the term, with minds in a great measure fashioned
their leading features fixed by circumstances in which h
no share. He had to take these minds and characters a
were and to make the best of them. He was distincti
practical man, governed by two main principles: As a t
of character he aimed to make his pupils Christian gentl
as a trainer of mind to make them think. Round thes
points as pivots revolved the ever varying arrangeme
practice. "Rapid," says Dean Stanley, "as might b
alterations to which the details of his system were subj
the general principles remained fixed."

Arnold showed his high estimate of the importance
profession by—(1) devoting himself intensely to its
(2) by entertaining a deep sense of its responsibilities;
incessantly carrying on his own education; (4) by conti
aiming to improve his practice, while maintaining his
ples; (5) by manifesting a high regard for work.

Mr. B. Price who was first a private pupil of Arnold
afterwards an Assistant-Master at Rugby, says: "Dr.
gave an intense earnestness to life. Every pupil was m
feel there was a work for him to do, that his happiness a
as his duty lay in doing that work well. Hence an indes
ble zest was communicated to a young man's feeling abo
a strange joy came over him on discovering that he ha
means of being useful, and thus of being happy; and a
respect and ardent attachment sprang up towards him wh
taught him thus to value life and his own self, and his wor

mission in this world. All this was founded on the breadth and comprehensiveness of Arnold's character, as well as its striking truth and reality; on the unfeigned regard he had for work of all kinds, and the sense he had of its value, both for the complex aggregate of society, and the growth and perfection of the individual."

Arnold was, as we might have expected to find him, a first-rate teacher; he loved the work, and eminently excelled in it.

This is Dean Stanley's account of Arnold's mode of teaching: "His whole method was founded on the principle of awakening the intellect of every individual boy. Hence it was his practice to teach by questioning. As a general rule, he never gave information except as a kind of reward for an answer, and often withheld it altogether, or checked himself in the very act of uttering it, from a sense that those whom he was addressing had not sufficient interest or sympathy to entitle them to receive it. His explanations were as short as possible—enough to dispose of the difficulty and no more—and his questions were of a kind to call the attention of the boys to the real point of every subject, to disclose to them the exact boundaries of what they knew or did not know, and to cultivate a habit not only of collecting facts but of expressing themselves with facility, and of understanding the principles on which their facts rested. 'You come here,' he said, 'not to read, but to learn how to read'; and thus the greater part of his instructions were interwoven with the process of their own minds; there was a continual reference to their thoughts, an acknowledgment that, so far as their information and power of reasoning could take them, they ought to have an opinion of their own. He was evidently working not for but with the form, as if they were equally interested with himself in making out the meaning of the passage before them. His object was to set them right, not by correcting them at once, but either by gradually helping them on to a true answer, or by making the answers of the more advanced part of the form serve as a medium thru which his instructions might be communicated to the less advanced. Such a

system he thought valuable alike to both classes of boys.
those who by natural quickness or greater experience o
teaching were more able to follow his instructions it confi
the sense of the responsible position which they held i
school, intellectually as well as morally. To a boy less r
or less accustomed to it, it gave precisely what he conc
that such a character required. 'He wants this,' to use his
words, 'and he wants it daily—not only to interest and e
him, but to dispel what is very apt to grow around a lo
reader not constantly questioned—a haze of indistinctnes
to a consciousness of his own knowledge or ignorance;
takes a vague impression for a definite one, an imperfect no
for one that is full and complete, and in this way he is cont
ally deceiving himself.'

"Hence, also, he not only laid great stress on original com
sitions, but endeavored so to choose the subject of exercises a
oblige them to read and lead them to think for themselv

You see that Arnold was not given to lecturing and prat
in his class. He wished, as his history expresses in anot
place, that as much as possible should be done by the b
and nothing for them, and had, we are told, an increasing c
viction that it was not knowledge, but the means of gain
knowledge, which he had to teach. Arnold then would
doubt have been ready to agree with Dr. Temple, that a tea
er's success may be measured by the degree in which he
his pupil to teach himself.

Wolf, the first German scholar, and equally eminent sch
director at Halle, and like Arnold an enthusiastic teacher,
accustomed in his classes to give as little explanation as po
ble, justifying himself by the *quicquid præcipis brevis e*
"Whatever instruction you have to give be brief," and also
the example of Tanaquil Faber, whose words he quotes
follows:—"Those are to be looked on as the worse teach
who interrupt their lessons by too much talking. They w
to say much, but they mostly say nothing, and they rat
deafen their pupils than really make things clear to them

Faber goes on to say, that we cannot expect, nor even wish, that the knowledge of young pupils should be severely systematic. If we attempt to make it such by our explanation we shall fail; in fact, the whole resolves itself ultimately into the principle contained in Rousseau's words: "In teaching himself, the child really carries with him that which he can carry, and nothing more."

One of the features of Arnold's teaching, which must be a feature of all successful teaching, was his power of sympathy. Without this, teaching, instead of being leading and directing, becomes mere driving. With it the teacher is the guide, companion, and friend of his pupil; they perform the difficult journey by mutual co-operation. But then sympathy, to be really a reactive power, must be founded on knowledge. If I do not really know my friend, I cannot sympathize with him in his trials and difficulties, and, with the best intentions, I may wound him when I wish to heal, impede his movements when I wish to expedite them, entangle him the more in my attempts to set him free. The power of sympathizing with his pupils in their difficulties, as well as in their successes, is then, I repeat, a prime qualification of a good teacher, and it was possessed by Arnold.

When a boy, after treading his way anxiously thru a difficult passage of Latin, arrived successfully at the end, and on looking up observed the pleased countenance, and heard the cheerful "thank you" of the master, he could not but feel how truly that master had sympathized with his thoughts, and looked on his success as a subject for mutual congratulation. "He calls us *fellows*," said one of the boys, soon after his arrival at Rugby.

As a general principle, Arnold governed the school precisely on the same principle as he would have governed a great empire, with a union of firmness and tenderness which enforced respect both for his head and his heart. He was stern in punishing grave offenses, but, on the other hand, generous in the recognition of virtues, even when their amount was small, so pleased was he to acknowledge the presence of good in the midst of evil.

Educational Classics

Extracts from Horace Mann's Writings. II

. . . . I believe Normal Schools to be a new instrumentality in the advancement of the race. I believe that, without them, Free Schools themselves would be shorn of their strength and their healing power, and would at length become mere charity schools, and thus die out in fact and in form. Neither the art of printing, nor the trial by jury, nor a free press, nor free suffrage, can long exist, to any beneficial and salutary purpose, without schools for the training of teachers; for, if the character and qualifications of teachers be allowed to degenerate, the Free Schools will become pauper schools, and the pauper schools will produce pauper souls, and the free press will become a false and licentious press, and ignorant voters will become venal voters, and thru the medium and guise of republican forms, an oligarchy of profligate and flagitious men will govern the land; nay, the universal diffusion and ultimate triumph of all-glorious Christianity itself must await the time when knowledge shall be diffused among men thru the instrumentality of good schools. Coiled up in this institution as in a spring, there is vigor, whose uncoiling may wheel the spheres.

. . . . The only sphere, then, left open for our patriotism, is the improvement of our children,—not the few, but the many; not a part of them, but all. This is but one field of exertion, but it opens an infinite career; for the capacities of mankind can go on developing, improving, perfecting, as long as the cycles of eternity revolve. For this improvement of the race, a high, a generous, an expansive education is the true and efficient means. There is not a good work which the hand of man has ever undertaken, which his heart has ever conceived, which does not require a good education for its helper. There is not an evil afflicting the earth which can be extirpated until the auxiliary of education shall lend its mighty aid. If an angel were to descend from heaven to earth, on an errand o and love, he would hasten to accomplish his mission b nating the minds and purifying the hearts of childre Savior took little children in his arms and blessed th did not, by any miraculous exertion of power, bar up sages to sin and error, and at once make mankind the recipients of perfection. He left it for us to be agents workers with him in their redemption. He gave to us, much the boon of being blessed, as the more precio heavenly boon of blessing others. For this end, an inst has been put into our hands, fully adequate to the acco ment of so divine a purpose. We have the power to t children in accordance with those wise and benign laws the Creator has stamped upon their physical, their intel and their moral nature; and of this stewardship we assuredly give account. May it be rendered with joy, a with sorrow! . . .

. . . . But to make small children sit both dumb a tionless for three successive hours, with the exceptio brief recess and two short lessons, is an infraction of eve which the Creator has impressed upon both body and There is but one motive by which this violence to every p ing of nature can be committed, and that is, an overwh stupefying sense of fear. If the world were offered t children as a reward, for this prolonged silence and in they would spurn it; the deep instinct of self-preservatio is sufficient for the purpose. The irreparable injury of a child sit straight, and silent, and motionless, for thre tinuous hours, with only two or three brief respites, can conceived. Its effect upon the body is to inflict sever to impair health, to check the free circulations in the sys all which leads to dwarfishness;—and to misdirect the of the vital organs, which leads to deformity. In regard intellect, it suppresses the activity of every faculty; a it is a universal law in regard to them all, that they a strength by exercise, and lose tone and vigor by inactio consummation. If these observances are worthy of so much attention, when men,—almost impassive men,—are to be affected, what devotion should be bestowed both upon purpose and demeanor, when we are to appear before impressible children? If the sentiment of the community demands all this, when an assembly of adult men and women are to be addressed, —who hold impressions with but little more tenacity than water holds them, and from whose minds, as soon as the impressions are made, they begin to fade away and to be obliterated,—what care and effort can be deemed excessive as a preparation for acting upon children, in whose minds all impressions brighten and deepen by the lapse of time? If a teacher enters his schoolroom in the morning with a querulous spirit, or a beclouded intellect, instead of attributing to his scholars any unusual perversity or obtuseness, let him ask himself where he was the evening before; what untimely hours he kept; what improper indulgences he yielded to; what cause for the exhaustion either of body or mind, in regard to himself, may have engendered suspicions of refractoriness or of stupidity on the part of his charge. For the noble office of improving others, the first step of preparation is self-improvement. For those who serve at the altar of this ministry, "the first act of worship is the purification of the worshipper." . . . .

OPPORTUNITY OF THE COMMON SCHOOL.

Without undervaluing any other human agency, it may be safely affirmed that the common school, improved and energized as it can easily be, may become the most effective and benignant of all the forces of civilization. Two reasons sustain this position. In the first place, there is a universality in its operation, which can be affirmed of no other institution whatever. If administered in the spirit of justice and conciliation, all the rising generation may be brought within the circle of its reformatory and elevating influences. And, in the second place, the materials upon which it operates are so pliant and ductile as to be susceptible of assuming a greater variety of forms than any other earthly work of the Creator.

Systems of Public Education

Educational Progress in Denmark. II

SECONDARY SCHOOLS.

Secondary schools for boys in Denmark are of two kin
The first are called Lærde Skoler, or Latin schools, which p
pare for the higher professions and the University; the seco
are modern schools, or Realskoler, which prepare for the higl
ranks of business and for the minor professions. These h
a course two years shorter than the Latin schools, so as to all
a boy to enter on business life at the age of sixteen. There
two leading features common to both kinds of school.
their work is arranged for years beforehand with a view t
State leaving examination, the higher of which is called Arti
(Afgangsexamen for Studerende) and the lower Prälimi
(Almindelig Forberedelses-examen). The whole key to
right understanding of these schools is to be found in these t
examinations. A further characteristic is the thoro-going w
in which the State, instead of superseding or depressing priv
effort, has enlisted it in its service, taking care that sch
should be fostered and helped according as they are good, q
irrespective of their being in public or in private hands.
the State-recognized Latin schools one-half are in private ha
and of the State-recognized Realskoler two-thirds. In so
parts, and more especially in the capital, were it not for
private schools, the secondary education of boys, and still m
that of girls, would be all but non-existent.

In the year 1880 there were twenty-four State-recogni
Latin schools, of which fourteen may be called public scho
and ten, private; they have since increased to thirty-fo
Two-thirds of the additional schools are private, and about o
third owe their origin to the Communes. In the year 1883 th
were forty-three State-recognized Realskoler, of which elev
were attached as modern sides to as many Royal Lærde Skol

eleven were Communal schools and twenty-one were private. At the end of 1896 these had increased to 134. Of these ninety-one newly recognized schools, four-fifths are private schools (among them twenty-six girls' schools), and seven-tenths of the pupils in the 134 schools are in the private schools. England has a population fourteen times as great as that of Denmark. And if we had a corresponding number of State-approved secondary schools, we should have not only 476 classical schools, but 1,876 Realskoler, in which the mother-tongue, two or even three foreign modern languages, mathematics, and science would be adequately taught.

Of the thirty-four Latin schools all but two are also Real schools. They are organized in the following way: Up to twelve years of age the boys of both departments are taught together in what are called Fællesklasser. Then begins the special preparation in separate classes for Artium and Pärliminär, there being six classes (one for each year) for the Latin pupils and four for the Real pupils. At the end of the fourth year there is a State examination in each department, the fourth class Hovedexamen, in the first case, and the Präliminär, or minor leaving examination, in the second. The fourth class Hovedexamen is an examination in Danish composition, in German, French, Latin (written and oral), history, geography, natural history, arithmetic and algebra, geometry, Greek (only for those who intend to specialize in languages and history), and physiography (for all the rest). This examination once passed, the pupil begins to specialize; those who intend to take their Artium in classics stopping their mathematics, whilst the rest stop their Latin and give more time to mathematics and science. The former have to pass Artium in twelve subjects, *i. e.*, in Danish composition (a double examination), old Scandinavian, French, German, English, history, Latin (written), Latin subjects (oral), Latin unseen (oral), Greek, and physiography. The latter omit the Latin, Greek and physiography entirely, and substitute for them arithmetic and algebra (written and oral), geometry (written and oral), mechanics, physics,

and optics, chemical physics with astronomy and meteorol
This bifurcation dates only from 1871, and tho it does
work quite so well as was hoped, there are no immediate
posals for change. In the year 1890 the classical candid
at this examination at the Royal Lærde Skoler were more t
three times as numerous as the mathematical, but at the pri
Latin schools, which are newer and less conservative, they w
not much more than twice as numerous.

Präliminär is an examination in Danish (written and or
English (written and oral), German or French, or both, hist
geography, natural history, physiography, geometry (writ
and oral), arithmetic and algebra; and as many marks
given for neatness as for an ordinary subject. Danish
English count double. I have met boys of fourteen from R
schools who could readily understand and speak English, wh
boys of seventeen at classical schools could do neither. A
the time-tables of the two schools readily show the reason
this. Präliminär and Fourth Class Hovedexamen are so simi
in many of their subjects that a pupil who wishes his Prälimi
to count towards the Fourth Class Examen has to pass an ex
examination only in Latin, or in Latin and Greek, as the c
may be. Out of 1,593 pupils who passed Artium in the ye
1889-1894, 220 had been pupils in Realskoler and passed P
liminär. After passing the extra examination in Latin th
entered the fifth class of the Lærd Skole.

There is no stipulation at any of these examinations t
entire failure in any one subject carries with it the total rej
tion of the candidate. Yet the minus mark for entire fail
is serious. The highest possible mark for a subject is eig
and this decreases by degrees to the mark "pretty good" (=
"moderate" (= — 7), and "bad" (= — 23). Only in v
rare cases would any one who received the mark "bad" succ
so well in his other subjects as to obtain the requisite minim
of marks.

The yearly report, which bears the name of Departeme
schef A. F. Asmussen, contains the name and the date of bi

of each successful candidate at the two leaving examinations, with an indication of his father's position, of the number of years he has been in school, and of the marks he has obtained in each of his subjects. In each examination quite one-half of the work is *viva voce*, in which it is the teacher only that questions whilst the Government censor sits close at hand taking notes or (occasionally) directing the examination thru the teacher. With the exception of composition the entire examination in languages, ancient and modern, is thus conducted. Within certain wide limits a school may read what it will, and is not bound to take up the same subjects as its neighbors. When the examination is concluded, examiner and censor compare notes and determine the mark or "character" of each candidate. In most cases they agree. If the examiner from his fuller knowledge of the boy thinks him worthy of a higher mark than the censor, he is not expected to give way. The two marks are added and the half taken.

Our teachers on hearing that failures at these leaving examinations are very rare (they scarcely reach two per cent.) would be apt to infer that they were not sufficiently strict. But this is not the case. The plucking really takes place at an earlier stage. A boy, for instance, could hardly be moved up to the highest or leaving class at the whim of a parent, unless he were really fit for it. Nor would the schoolmaster venture to "dismiss" a boy, *i. e.*, enter his name as a candidate, unless there was a fair prospect of his passing. The State would hold him responsible for the act of entering the boy's name; and if an unusual percentage of failures took place, the inspector would feel it his duty to keep a more watchful eye on the school and its arrangements. Thus the schoolmaster, when pressed to do what he cannot approve, can shelter himself behind the inspector's authority.

Artium is absolutely necessary before a student can begin his course at the University. Präliminär is also necessary for those who wish to become students at the Veterinary and Agricultural School in Copenhagen with a view to becoming baithe staff, and as to the buildings of the school. Each of the four Real Classes, for instance, must have a master for it; it would not be allowed to put classes of two years, even tho they were somewhat small, under one master. If everything is satisfactory the permission to hold Artium may be given for five years, and to hold Präliminär for three years. But if the school is hopeful without being satisfactory in every point, the permission may be given for a shorter term still. Permission once given is rarely recalled, or fails to be renewed; the fear of its not being renewed keeps the school up to the mark. But it is not every good school that seeks for permission. There are three or four good girls' schools in Copenhagen that could readily get the permission if they desired it. The leaving examination as conducted by the State cannot but be a great interruption to the work of the higher classes in school during the last part of May and nearly all of June. And as a leaving examination for girls is not so necessary as it is for boys, there are some excellent girls' schools that prefer entire freedom. Nearly every good boys' school seeks State recognition if it has any chance of attaining it.

During the last twenty years, in fact, the private schools, under the fostering care of the State, have been busily engaged in emerging from the non-recognized to the State-recognized condition at the rate of six or seven a year. A school with a vigorous headmaster, and with a sufficient population to draw pupils from, first gets permission to have Präliminär, and then (if there be no Latin school near by) it may add the fourth-class examination, and, lastly, Artium. And the process is still going on.

It will be seen that the investigations preceding the grant of the right to hold the leaving examinations within the walls of a school is one important means by which the State exercises control over the schools it recognizes. A further control is, of course, exercised each year thru the leaving examinations and the published results of the same, and (in the case of aided schools) by the publication of additional details, which will